



The International Mire Conservation Group (IMCG) is an international network of specialists having a particular interest in mire and peatland conservation. The network encompasses a wide spectrum of expertise and interests, from research scientists to consultants, government agency specialists to peatland site managers. It operates largely through e-mail and newsletters, and holds regular workshops and symposia. For more information: consult the IMCG Website: <http://www.imcg.net>

IMCG has a Main Board of 15 people from various parts of the world that has to take decisions between congresses. Of these 15 an elected 5 constitute the IMCG Executive Committee that handles day-to-day affairs. The Executive Committee consists of a Chairman (Jenny Whinam), a Secretary General (Hans Joosten), a Treasurer (Philippe Julve), and 2 additional members (Tatiana Minaeva, Piet-Louis Grundling).

Viktor Masing (†), Hugo Sjörs, and Richard Lindsay have been awarded honorary membership of IMCG.

### Editorial

This first Newsletter of 2005 contains an overview of important events and developments for 2005 and beyond. The IMCG Board has decided to launch a new internet-based international peatland journal together with IPS. Here is your opportunity to effectively publish the things the world is waiting for.

The newsletter also reflects the recent developments following the IMCG events in South Africa 2004, updates the plans for the IMCG Field Symposium in Tierra del Fuego (Argentina) in November 2005, and provides the first detailed information on our meetings in Finland 2006.

Important political developments reported on are the meeting of Ramsar STRP last February and the first meeting (March 15, 2005) of the European Union Ad Hoc Working Group on Eco-labelling of Soil Improvers and Growing Media. The latter issue gets special attention, as we want to stimulate discussion on this important and tricky subject.

As always the newsletter ends with a variety of peatland news from all over the world, a presentation of recent new literature, and an overview of relevant future congresses and conferences.

Please send all your proposals, discussion contributions, news, publications, etc. to us, and with your help we will again prepare an interesting Newsletter. Deadline for the next Newsletter is 26 June 2005.

For information or other things, contact us at the IMCG Secretariat. Address updates should be sent to Jan Sliva ([sliva@wzw.tum.de](mailto:sliva@wzw.tum.de)). In the meantime, keep an eye on the continuously refreshed and refreshing IMCG web-site: <http://www.imcg.net>

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### Contents:

Editorial.....	1
Pleased to meet you...: Co-opted members of the IMCG Main Board.....	2
The new scientific mire and peatland journal.....	4
Towards Ramsar COP9: losing opportunities or fixing the process.....	5
IMCG Mires and Peatlands Field Symposium Tierra Del Fuego 2005.....	7
IMCG Congress 2006 – Finland, land of mires.....	8
And what about peat? EU eco-labels under revision.....	12
UNDP/GEF Peatland Restoration Project in Belarus.....	18
Wetland restoration in Iraq.....	20
More about windmills and blanket bogs.....	22
Peat fires in South East Asia.....	24
Tsunami and Coastal Wetlands.....	24
Ramsar Small Grants Fund.....	25
Regional News.....	26
New and recent Journals/Newsletters/Books/Reports.....	33
IMCG Main Board.....	35
UPCOMING EVENTS.....	36

## Pleased to meet you...: Co-opted members of the IMCG Main Board

After the election of the IMCG Executive Committee (see IMCG Newsletter 2004/5), the IMCG Main Board has co-opted three more members. Tapio Lindholm was co-opted because of the Fennoscandian representation and because "he" has to organize the 2006 IMCG events. With Line Rochefort we have a worthy successor of Barry Warner as a representative of North America, particularly the major peat-country Canada. Asbjørn Moen will specifically dedicate his energy to finalizing the European Mires Book project. They present themselves below.

### **Tapio Lindholm (Finland)**

Born January 5th 1953. Since 1989, I am working in Finnish Environment Institute (FEI). It is Finland's national centre for environmental research and development, and is also responsible for certain administrative tasks. FEI produces data on the state of the environment in Finland, including significant environmental trends and the factors behind them, also assessing alternative future trends, and developing solutions to promote sustainable development. FEI compiles, processes, and publishes a wide range of environmental data, meeting Finland's reporting obligations related to EU environmental legislation and other international agreements. FEI also looks after various aspects of the management and use of water resources in Finland.

My role in FEI is to work with different questions of mire and forest conservation and restoration, and to work with different mire protection and mire ecological studies. In general I am as well a mire ecologist as a forest ecologist. The combination of these skills is needed in Finland where boreal forests are covering most of country's area, and where the drainage of mires for forestry has covered 20 % of the country during the last decades. My education is botanist and I have finished my PhD in Helsinki University. I have also gained a docent (adjunct professor) degree of Botany in Helsinki University. That means that I am a link between our institute and the university world in botany.

Finland is a country now belonging to the European Union, but it has deep roots with joint history of Sweden and Russia. So, I am also interested to have close links to the west and to the east. The Nordic dimension is mainly based on the activities of The Nordic Council of ministries. Also direct contacts to Sweden and Norway belong to my activities, including academic institutes as well environment authorities. The same has been possible also to Baltic countries: Estonia, Latvia and Lithuania, during the last decade, although I started my contacts already during the soviet era. That was beginning with a mire ecology and conservation discussion which continues today with Baltic mire specialists

Also the contacts to the east I started already during the preglasnost time in the Soviet Union. The iron curtain was rather solid at that time, but luckily there were some small windows for scientific and technical contacts. I started mire ecological contacts to Leningrad and Karelia in 1983, and they are continuing in a better world today. Those contacts have gradually deepened and widened so that at this moment I have contacts to several subjects to north-western Russia: Karelian republic, Murmansk region, Archangelsk region, Vologda region, Komi republic, Leningrad region, and St. Petersburg city. That is based mainly on my role as a co-chair of the Finnish-Russian nature conservation group. I am also an ecological adviser in the Northwest Russia biodiversity project, which is going on in FEI. Nature conservation is an important part in those activities.

I feel that it is important to be in contact on mire ecology and mire conservation issues to all three directions. i.e. east, south and west. In that connection I consider IMCG as an important tool. And in that connection my main activity is to plan and organize with my colleagues the next big IMCG activity, the IMCG venue 2006, in Finland. I hope that in that connection we can increase the understanding on the ecology of boreal mires and the problems of the preserving their biodiversity.

### **Asbjørn Moen (Norway)**

Dr. Philos., professor in vegetation ecology and nature conservation at the university of Trondheim, Norway. Born 1944-02-21; grew up in the countryside of Central Norway, lived in Trondheim since 1960; married, three children, one grandchild.

Research. More than 200 scientific papers (including a number of reports). The research activity can be separated in three main topics; the first one has been the most important the last five years:

Long term studies of changes, dynamics and threats in the cultural landscape of Central Norway, main emphasis on upper boreal hay fens and grasslands and coastal heathlands. The last five years supervisor of three Dr.scient. students and six Cand.scient students.

Regional studies and conservation of mires. Responsible for the scientific part of the Norwegian national plan for mire nature reserves; worked out 1969-1985. (At present 278 mire nature reserves, covering 554 km<sup>2</sup>, are established). The main organizer of the 6th IMCG field symposium in Norway 1994, editor of the proceedings (Gunneria 70; published 1995). In 1996-1998 an "expert" on a World Bank project in Estonia. Participated in mire excursions and fieldwork in Austria, Canada, Estonia, Finland, France, Ireland, Latvia, Russia, Scotland, South Africa, Sweden, Switzerland and USA.

Mapping of vegetation (scales 1: 5000 to 1: 50 000 using aerial photographs and satellite data),

classification and mapping of vegetation zones and sections, mainly in Norway; author of "National Atlas of Norway: Vegetation" (English version 1999).

Scientific committees and societies. Appointed a member of The Royal Norwegian Society of Sciences and Letters, 1993. Member of British Ecological Society, International Association for Vegetation Science, International Peat Society, and IMCG (from the start).

### **Line Rochefort (Canada)**

I was invited last summer by the executive board to join the board of IMCG as a representative of North America within the organisation. It is with pleasure and drive to do more towards the protection of mires that I am now gladly accepting to participate more actively in this international organisation. Before letting you know some of my goals during my mandate, let me tell you where I come from and who I am.

I did my undergraduate studies at Université Laval in Biology. During the three years of my bachelor degree, I work part time as a research assistant at the herbarium and full time in the summer in the tundra for different research projects in plant ecology conducted at the Centre d'Études Nordiques (Northern Research Center of Laval University). Seeing more easily the diversity of mosses and lichens up there I was hooked to study them. Hence I decided to do a M.Sc. project on peatland ecology under the supervision of Dr. Dale Vitt at the University of Alberta. The research project focussed on the impact of acid rain on peatlands, working on a rich fen in Alberta and on a bog in northern Ontario in co-direction with Dr. Suzanne Bayley. Wanting to get a general formation in environment, I moved from regional problems (acid rain) to global problems by studying the impact of increasing carbon dioxide on plants at Cambridge University in England (with Dr. Ian Woodward) and Harvard University in USA (with Dr. Fakhri Bazzaz). Upon completion, I was successful in getting a tenure-track position at Université Laval in applied plant ecology.

Now I am the senior chair of the Industrial Research Chair in Peatland Management and I am a full professor in the Department of plant sciences (Département de phytologie) of the Agricultural and Food Sciences Faculty of the University Laval. I am also the head of the Peatland Ecology Research Group (web site: [www.gret-perg.ulaval.ca](http://www.gret-perg.ulaval.ca)), which is made up of a team of multidisciplinary researchers, since its creation in 1993. Currently, I supervise a team of three research professionals, a post-doctoral student, eleven graduate students and offer courses and research opportunities to undergraduate students. In addition to this peatland research, I am a board

member of the Centres d'Études Nordiques and an associate editor of the publication *Wetlands*.

Apart from my graduate studies, my expertise in peatland ecology has been gained through several projects (1992-1999) with Johnson & Johnson on developing Sphagnum biomass with good absorbing properties to produce sanitary napkins. The company has ceased to fabricate this product since 1999. In 1993, the Ministry of Environment from the province of Québec financed a major project on the restoration of cut-over peatlands. With the promising results, the Canadian peat industry has supported the restoration research since 1996 and is now continuing with the funding of the Research Chair. The Peatland Ecology Research Group (PERG) has so far published 125 publications in peatland restoration and conservation (listing in [www.gret-perg.ulaval.ca](http://www.gret-perg.ulaval.ca)) and one end-user publication with the production of a peatland restoration guide (120 pages). Perhaps the most significant contribution has been the education made within the peat industry about the goods and services provide by the mires and changing minds about the importance of sound resource management for environmental benefits. As a result, most Canadian peat moss industrials are voluntarily restoring milled peatlands and several companies are also involved in conservation projects.

For the past 15 years, I have also been involved in a long-term research study in the High Arctic (Bylot Island) investigating the impact of grazing by the increasing Snow goose population in North America on the polygon fens which is their preferential feeding habitat. In the past four years, I am collaborating within an international project (Finnish-Irish-Canadian) to study the impact of global warming on peatlands with pools.

My goal within IMCG for this first mandate is to increase memberships and awareness about the necessity of mire conservation within North America. In Canada, our peatland resource and coverage statistics date from the 1970's (post first petrol crisis) but much is known within each province although no compilation exists. It is my intent to get each province involved with IMCG and improve our knowledge of Canadian peatland coverage through publications. Even though we know little about the extent of peatland coverage in northern Canada (NWT, Labrador, northern Ontario and Québec), we know much less about the rate of loss of peatlands in southern Canada. I hope to stimulate exchange of information between the different provinces (one has to know that the land in Canada is managed by the province and not at the national level) and make sure that in Canada a diversity of peatlands obtains a preservation status. This last part sounds almost like a prayer but it is my wish.

## The new scientific mire and peatland journal

by Olivia Bragg

It's official, IMCG will collaborate with IPS to launch a new, peer-reviewed international research journal focusing on mires, peatlands, and peat. For IPS, this will replace the International Peat Journal (IPJ), but it shouldn't be just more of the same. It will cover ALL aspects of peatland research from conservation, ecology and wise use to balneology; and it will have free worldwide distribution via the internet. Thus it will already be an invaluable vehicle for the communication of scientific information. It will also strive to achieve an official impact factor through ISI accreditation. This becomes available only when the topic is judged to have reached critical mass because it generates a lively flow of high-quality publications. And that is the challenge. Can we prove that peatland research is now well on the way to qualifying as a "hot research topic?" Send me your next good paper soon, and we'll see.

If you're already excited at the prospect, I would love to hear from you, and there are some additional ways that you can get involved. In particular, your input to a couple of current issues would be appreciated.

First, we need strong IMCG representation on the Editorial Board (EB). In addition to myself (Editor), Jack Riele (Deputy Editor) and Michael Trepel (Web Administrator), eight former (IPS) members of the IPJ EB have kindly agreed to continue this work for the new journal, giving representation from the UK (3), Finland (2), Germany (1), Indonesia (1) and Sweden (1). The job description is quite vague, but the principal function of the EB is to assist the Editor with policy and direction and to promote the Journal internationally. Most EB members also offer to peer-review around three manuscripts per year, and to provide help with (English) language revision if appropriate. For accreditation purposes, the eminence and publication records of EB members are taken into account. So especially if you are from a part of the world not yet represented on the Board and publish actively in the scientific literature, please consider whether you would be able to volunteer yourself (or suggest someone else) for the EB. I'll be approaching individuals in the near future in any case.

Secondly, if we are to apply a rigorous peer review process across the full scope of the Journal, we shall need an extensive panel of reviewers. Indeed, we are indebted to a number of people from IPS and IMCG - as well as from the wider research community - who have contributed reviews for papers already "in the

pipeline." Obviously I don't know exactly what range of expertise we have within IMCG, so if you can offer to review articles within your own research area, please let me know what topics you could cover.

The name of the Journal has still to be agreed upon. Most people think that the words "mire", "peat", "peatland" and "research" should all be included but that we cannot take a name that has already been used, so it is beginning to look something like Mire and Peat Research: The International Peatland Journal. Any further ideas for a name - especially if they are brilliant - could still be taken on board.

As far as timing is concerned, the web site is already waiting for its final name and the first manuscripts to reach the end of the review process. Papers can be posted individually, so the race is now on to launch!

Finally, this is an official call to all IMCG members for the submission of new manuscripts. Instructions to Authors are available by e-mail from me. The current statement of scope follows:

The Journal will publish high-quality research papers on all aspects of peatland science, technology, and wise use, including:

- ecology, hydrology, survey, inventory, classification, functions and values of mires and peatlands;
- scientific, economic, and human aspects of the management of peatlands for agriculture, forestry, nature conservation, environmental protection, peat extraction, industrial development and other purposes;
- biological, physical, and chemical characteristics of peat; and
- climate change and peatlands.

Short communications, review articles, and book reviews on these and related topics will also be considered; and suggestions for special issues of the Journal based on the proceedings of conferences, seminars, symposia and workshops will be welcomed. The submission of material by authors and from countries whose work would otherwise be inaccessible to the international community is particularly encouraged.

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## Towards Ramsar COP9: losing opportunities or fixing the process

by Tatiana Minaeva

IMCG entered into the Ramsar Convention process through the diplomatic skills and strong will of Richard Lindsay. For IMCG the Ramsar Convention is a political mechanism to promote and sustain the results of our activities within the IMCG Strategy. The history of mires within the Ramsar process is well known (see [http://www.ramsar.org/types\\_peatlands.htm](http://www.ramsar.org/types_peatlands.htm)). The result of all the activities was Resolution VIII.17, which gave the Contracting Parties a framework for peatland conservation (Guidelines Global for Action on Peatlands, GGAP) and led to the instalment of a permanent "peatland" group under the Convention umbrella (CoCo-GAP, the Coordinating Committee for Global Action on Peatlands). The CoCo-GAP was established in 2003, when nineteen experts, drawn from the bodies listed in the Resolution, met in Wageningen (Netherlands) on 5-6 November 2003. Funding for this initial meeting was provided through the Global Peatland Initiative (GPI) with a grant from the Government of the Netherlands (DGIS). A second meeting of the CoCo-GAP took place in Tampere (Finland) on 6 June 2004 where 16 experts met in conjunction with the 12th International Peat Congress. Funding and administrative support was provided by IPS and the GPI secretariat. The Committee, 27 experts this time, met for a third time, again in Wageningen, on 29-30 October 2004. Funding and administrative support was provided by IPS, the Dutch Government (through Alterra) and the GPI secretariat. During this time, CoCo-GAP has been drafting the Implementation Plan of the GAP, as it was designated in the Resolution. It was expected that there would be a Resolution to endorse the Implementation Plan by the countries. The decision on that was expected from the Scientific and Technical Review Panel (STRP) to the Ramsar Convention.

The document, which was still very fresh, was presented during the STRP Meeting in February 2005 by the Russian representative in STRP and IMCG EC member Tatiana Minaeva. Below the relevant portion of the meeting report:

### *Agenda item 13: Recommendations for future technical priorities: Global Action on Peatlands*

125. Tatiana Minaeva made a PowerPoint presentation reviewing the tasks mandated by Resolution VIII.17 and reported that the Coordinating Committee for Global Action on Peatlands (CC-GAP) has now been established, comprising a broad range of representatives from industry, conservation groups, governments, academics, etc. She noted that Tobias Salathé is the chair and conveyed her thanks for his and the Secretariat's assistance. She introduced the Committee's draft "Implementation Plan for Global Action on Peatlands" and noted that

proposed annexes will be updated based upon information to be gleaned from the National Reports when they are submitted. She suggested that priorities for the future to be recommended to COP9 include peatlands and climate change, peatlands and water, peatlands and biodiversity, and peatlands and human well-being/poverty reduction.

126. Tatiana Minaeva continued that the CC-GAP process has provided a good model for emulation for other wetlands types, because it included intersectoral partnerships, involvement of the private sector, information transfer, leveraged fundraising (e.g., the Global Peatland Initiative), and the involvement of development agencies in project funding. She suggested that a draft Resolution for COP9 should include a recognition of the value of this partnership approach, information for the Parties about priorities identified by the CC-GAP, a request for the Parties to review how well their policy frameworks implement those priorities, and thanks to the Secretariat with a request for continued involvement in the CC-GAP. She said that tasks for the Secretariat in the next triennium might include providing a constant follow-up of information, monitoring GAP implementation by the Parties, identifying gaps, and assisting with fundraising.

127. The Deputy Secretary General (DSG) suggested that the review of implementation and the importance of the consortium approach could be more effectively highlighted in the Secretary General's Report to the COP and the regional overview reports than in a Resolution, supplemented by additional information to be made available via the Web site. He noted that the Committee's recommendations regarding priorities for the future will go into the STRP's advice to the COP on future priorities. He noted that the Secretariat has committed a lot of Dr Salathé's time as chairperson in order to assist the Committee in getting going, and that priority will have to be reviewed for the next triennium.

Decision STRP12-27: The STRP expressed its appreciation to the Coordinating Committee's hard work and substantial progress; the Panel urged that reports of the CC-GAP's achievements should be embodied in various reporting mechanisms to the COP and that its recommendations for future priorities should be included in the STRP's recommendations to the COP.

There were informal meetings with Tobias Salathe, Jaako Sippola (the new IPS secretary-general, who attended the meeting for 2 days), Randy Milton, and Douglas Taylor. The last 1,5 days also Andreas Grünig joined the discussions.

The way in which we had planned things differed much from what the Secretariat had envisaged. Our idea was 1) to prepare a Resolution on peatlands 2) to

attach to this resolution a technical paper, originally developed as "Implementation plan."

Unfortunately, the document we finally presented to the STRP and which was distributed to all MB members shortly before the STRP meeting, was far from being a final product. It was more a sketch on global peatland problems and an analysis of the capacity for peatland conservation. It was a good report on what was done till now, yet far from being the implementation plan demanded by Resolution 8.17.

Another point of critique was that the document contained too many statements not supported by publications (lack of references). It was decided not to ask STRP to recommend the document be brought to the CoP as Resolution. In the likely event of STRP declining, it would have caused many future problems. Moreover, the Standing Committee and STRP had decided to have very few resolutions for the Conference of Parties this time. Plans are to have two resolutions one "resuming" and one "planning" ahead. Of course countries are free to suggest more Resolutions via the Standing Committee.

It was suggested to initiate a so called "Ramsar Technical Report Series," which could be used for publishing background documents. In order to present our results to the COP 9, such an approach was worked out. The main accent in my presentation was on CoCo-GGAP being a perfect example of wide partnership focusing on conservation problems of one type of wetland. We suggested to include statements on the achievements in peatland conservation in the joint "resuming" Ramsar Resolution, and a list of hot-spots and priorities in the "planning" Resolution. We suggested to go on with the preparation of the Implementation Plan and present it on the Ramsar website as a technical paper and to publish it if funds are available.

Some people, including the IPS partners, were very unsatisfied with the result, bemoaning the loss of opportunity. At first I was also disappointed that there will not be a Resolution on peatlands. But is it really needed if it merely serves to analyse the situation? In Russia we say "shouting "sugar" all the time will not make it sweet." What more do we want to say about peatlands on behalf of the contracting parties? We have a very comprehensive section in the National Report Format, which can be improved upon if needed. We raised awareness of all parties on peatland conservation during the last COP and a number of side events. Much work was done by Richard Lindsay, Jack Rieley, and the team years before, which culminated by Resolution VIII.17. Our job now is to uphold the important place of peatlands within the Ramsar Convention. This can be done mainly by strengthening the CoCo GGAP further through a number of commitments and rights. CoCo GGAP should keep an eye on the input of CPs with respect to peatland conservation and should report to each COP. First, the Implementation Plan needs to be finished in time and be presented. Then one line in the "planning" Ramsar Resolution like "...CPs recommend the Implementation Plan for Global Action on Peatlands as a framework for planning and reporting to Ramsar on peatlands conservation..." would be sufficient.

IMCG should now focus on wider and official representation in Ramsar during COP meetings. IMCG should develop and print promotional materials for distribution to parties, etc. COP 9 in Uganda will be very soon! A good preconference excursion, presence in the press, leaflets, and posters on IMCG activity will involve more people in mire conservation and will contribute to peatland conservation also outside of the Ramsar framework.

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**Fast access and better on-screen readability**

## IMCG Mires and Peatlands Field Symposium Tierra Del Fuego 2005

*Ushuaia, Argentina 21-Nov to 1-Dec, 2005*

*by Rodolfo Iturraspe*

The Symposium organisation is going according to the schedule and there was an excellent response to the pre-registration call. Currently, 62 persons have expressed interest to be present at the meeting, including 11 Argentinean, 2 Chilean and 49 from Europe and others countries.

This information has only an indicative character because the effective registration will take place at the moment of the payment, but the pre-registration response is highly satisfactory. For logistic reasons the number of participants to the field trip is restricted to 50. There are no restrictions for participating only in the Scientific Sessions.

Effective registration will start at the end of March, when the bank account information will be published on the Symposium Web Site: [www.imcg.s5.com](http://www.imcg.s5.com)  
During the last months the Symposium organisation has received academic and/or institutional support from the following organizations:

- Facultad de Ingeniería -Universidad Nacional de la Patagonia. Argentina
- International Hydrologic Program, Argentina (IHP - UNESCO)
- RAMSAR Argentina.
- Consejo Federal de Inversiones, Argentina (CFI)

The Call for abstracts is open until April, 1st.  
Submission of abstracts as soon as possible will be very much appreciated.



*Valle de Andorra mire in Tierra del Fuego, one of the key sites for the IMCG TdF 2005 event  
photo: Reimund Wolf Hahne-Köppke*

## IMCG Congress 2006 – Finland, land of mires

by Tapio Lindholm & Raimo Heikkilä

### Invitation:

You are cordially invited to participate in the 2006 International Mire Conservation Group's (IMCG) Congress in Finland from 13th to 27th July 2006. The event is organised by the Finnish Environment administration and the Finnish Nature Conservation Association.

### *The congress programme:*

1. Pre-congress Field trip: 13th to 23rd July.  
Themes: Mire conservation, utilization, and restoration; mire development history, vegetation, flora and ecohydrology; aapamires and land uplift phenomena. IMCG past and future, Ramsar. Assessment of mire conservation situation in Finland.  
Venue: Finland from Lapland to southern coast
2. Symposium (scientific presentations): 24th to 26th July  
Theme: Conservation, biodiversity, and restoration of mires  
Venue: Southern Finland
3. IMCG General Assembly: 27th July 2006  
Venue: Southern Finland

### Background to Finnish mires:

Finland is located in northern Europe between 60° and 70° northern latitude and between 20° and 31° eastern longitude. The total area of Finland is 338,000 km<sup>2</sup>, 10% of this area is taken by 188,000 lakes. Of the land area forests take 60%, mires 30%, and cultivated areas and settlements 10%.

The climate in Finland is oceanic-continental, clearly influenced by the Gulf Stream. The mean annual temperature varies between +5,5°C in the southwest and -2°C in the northwesternmost tip of the country. The warmest month is July with mean temperature between 14 and 18 degrees in most of the country. Daily maximum temperatures can be up to 30 degrees in July. The coldest months are January and February with mean temperature between -4 degrees in the south and -15 degrees in Lapland. The climate is humid. The mean annual rainfall varies between 450-500 mm in the western coast and northern Lapland, and 750 mm in the southern coast and hill areas in eastern middle Finland. The most rainy months are July and August while January, April and May are the driest. The mean duration of snow cover in open ground is 110 days in southwestern Finland and 220 days in northern Lapland. The soil freezes in October-November and the ground frost melts in May-June. There is only sporadic permafrost in palsa mires and the highest treeless fell tops in northern Lapland.

Phytogeographically Finland belongs to the boreal coniferous zone, which is subdivided into hemiboreal, southern, middle, and northern boreal zones. In northern Lapland there are orohemiarctic areas in the fells above tree limit.

The Earth's crust in Finland consists mainly of Precambrian granites and metamorphic rocks. Their age is typically about 1.8 bill. years. Only in the north westernmost tip of the country there is a very small area originating from Caledonic fracturing 400 million years ago. Most of the bedrock is acidic. Calcareous and ultramafic rocks take less than 1% of Finland.

The bedrock is mainly covered by loose soils, with a mean thickness of 3-4 metres. Most of the soils originate from the latest glaciation and the Holocene. The most common Quaternary deposits are glacial moraines. Eskers and other glaciofluvial formations cover some 5% of the country, clay plains 10%, and peat covers 30%.

The terrain is relatively flat in Finland. The local altitude differences typically vary from 5 to 50 metres. In southern Finland only in a couple of places they are up to 200 m. In the fell areas in northern Lapland there are up to 500 metres local altitude differences. The maximum absolute height is 1328 m a.s.l. in Halti fell in the north westernmost tip of Finland. An exceptional feature is continuous land uplift up to 8 mm annually in the western coast of Finland. Because the terrain is very flat there, the shoreline continuously moves westwards causing primary paludification.

### Characterization of mires, typology, terminology, and classification

Due to the great number of different mires in Finland there are mires with different toponymes in the landscape and in maps. In general, in Finnish language, and also in classification, the word suo means mire including also wet paludified forests.

### *Mire complexes*

An individual mire or a distinct area of a larger mire area comprising a number of mire site types is called a mire complex. The original term mire complex (Moorkomplex) in the sense of Cajander denoted simply all the mire sites of a mire area. Later mire complex has been determined to be a united part of the whole mire area by Ruuhijärvi.

In Finland there are seven zones of mire complex types from the south to the north. Within each zone there is an additional east-west gradient due to the differences in the oceanicity-continentiality gradient.

### 1. Concentric bogs

Plateau bogs form the southernmost mire complex zone in southern and south-western coastal Finland. They are typical raised bogs where the centre is elevated and forms an even plateau with an irregular

network of hummocks and hollows. Hummock ridges and hollows form an irregular net in the plateau part of the bog.

Domed bogs are bogs of the southern and southwestern inland of Finland. These bogs are domed in shape, and consequently, elongated hummocks and hollows surround the highest point of the bog in concentric circles. The highest point can be in the middle or at the edge of the bog.

### 2. Eccentric bogs

North of the concentric bogs there is a zone of eccentric bogs which have developed on a more or less sloping terrain. These bogs are mires of central part of southern Finland. Hummocks and hollows are arranged in rows perpendicular to the slope. In this zone fairly dry pine-covered *Sphagnum fuscum* bog complexes without any regular structures are common on even terrain.

Aapa mires – Aapa mire complexes are mainly minerotrophic, and they have developed under conditions of short summers and long winters with abundant snow causing high and rather longlasting spring time flood from the drainage basin of the mire. This prevents the development to raised bog. This kind of conditions is typical for northern Finland in regions where the terrain is rather flat. Some aapa mires can be found in southern Finland, too. Aapa mires have a string and flark pattern, where the strings are perpendicular to the slope.

### 3. Sedge aapas

The southern aapa mire zone or sedge aapas are aapa mires of Ostrobothnia and Kainuu regions. They are relatively moist mires, where the intermediate level (lawn) predominates and sedge fens are covering the mire.

### 4. Flark aapas

The main aapa mires or flark aapas are aapa mires of Peräpohjola region around the Polar Circle, where aapa mires have the most characteristic patterns: wet flark fens are common and strings are high. Trees are often growing as narrow lines on strings. Some of flark aapas are rather poor with *Molinia*. In Eastern Finland, where the climate is more oceanic, flark aapas have developed on hill slopes forming sloping mires.

### 5. Pounikko aapas

Northern aapa mires or pounikko aapas are mires in Forest Lapland near the northern timberline. The term pounikko means hummocks, which are treeless because of the long lasting ground frost. The ground frost also forms the shape of strings, which do not form continuous lines. The high hummocks of pounikko have ombrotrophic characters. The strings form an irregular network in the centre of the mire complexes.

### 6. Palsa mires

Palsa mires are the northernmost complex type within the aapa mire zone. Palsas are large peat mounds, up to 7 metres high, containing sporadic permafrost. However, most of the area of mires are not palsas, but pounikko strings and aapa fens.

### 7. Orohemiarctic mires

Orohemiarctic mires are found in low alpine mountain regions. These mires have only a shallow peat layer. The vegetation consists typically of seepage flora. These mires belong to the arctic mire complex / unit, which have developed outside the arctic zone because of the elevation of the Northern Fennoscandia fells, (in Finnish tunturi, cf. tundra). In the highest fell areas above 1000 m a.s.l. there are also some polygon mires.

### *Mire site types*

Ecologically and botanically about 80 mire site types have been described in Finnish mires. For the practical purposes of using mires, mainly for the draining for forestry, a simplified classification system is used. The current Finnish mire-site type system, which has been developed further from the ideas of Cajander, has been basically constructed on the basis of different ecological gradients.

Mire sites have been divided according to their nutrient source into two groups: ombrotrophic and minerotrophic. Secondly, mire types are arranged in the classification system from the driest to the wettest.

### *The extent of mires and their utilization*

Finland's original mire area covered a total of about 10,4 million hectares, representing about one third of the country's entire land area. The term mire covers here also all wooded, but paludified habitats. Thus some of the mires have been also forest with fairly good timber production and a greater deal of mires have been sparsely wooded with poor timber production and the rest of the mires were open. In geological sense (> 20 ha > 0.3 m) the area of mires was about 5 million ha.

The utilization of mires has been much more intensive in Finland than in other northern regions in the world. Forestry, agriculture, and peat harvesting have in general destroyed original mire habitats, and hence also the fauna and flora. Forestry is an important industrial sector in Finland and pristine mires have been regarded as a valuable resource for forestry. Therefore, large areas of mires have been drained for forestry purposes, covering a total of 5.9 million hectares of former mires. Thus Finland has carried out the world's most extensive programme of mire draining, being most active in 1970s, when almost 3,000 km<sup>2</sup> of mires were drained annually. At present, draining of pristine mires has almost ceased, and most activities are concentrated on maintaining ditches in drained peatland forests.

The agricultural use of mires has during past centuries reduced the mire area by about 1,2 million ha. Especially rich fens and fertile spruce mires, and their specialized fauna and flora have disappeared.

Peat mining is now increasing rapidly in central parts of the country. About 662,000 ha have been reserved for future peat mining, and at the moment some 100,000 ha have already been taken by peat mining. Some large mire areas have been drowned in water reservoirs (60,000 ha).

Formerly many mires – particularly in northern Finland – have been used for collecting winter fodder for livestock. In many areas most of the open mires, growing sedges and grasses have been used as mire meadows. This kind of activity has now ceased.

#### *Mire conservation in short*

In 1956, the strict nature reserves of Vaskijärvi, Häädetkeidas and Runkaus were established to protect good examples of raised bogs and aapamires for scientific purposes.

The first mire conservation plans were made in the 1960s when forestry drainage of mires expanded enormously. The plans covered 180,000 hectares of state-owned mires, mainly large mire complexes in northern Finland. Special attention was paid to mire complexes and bird fauna. During the work it became clear that especially in southern Finland also mires in private land must be protected to preserve the diversity of mire ecosystems.

In the 1970s a plan for the development of the network of national parks and strict nature reserves, including many of the most valuable mires was prepared in the environment administration. Simultaneously, a nationwide mire conservation programme was compiled. In these programmes, the goals were to preserve the diversity of mire complexes, mire site types, vascular plants, and birds, as well as to form a comprehensive network of reserves. The main idea was to protect typical and large examples of mire complexes, but attention was also paid to small mires, especially rich fens. The first lists of threatened mire site types and vascular plants in mires were also compiled.

The estimated amount of existing pristine mires is about 3,5 million ha, most of it is located in northern Finland. The total area of protected mires is about 1,2 million ha. In southern Finland pristine mires can be found practically only in areas which are protected or planned to be protected.

The present Forestry Act and Nature Conservation Act contains specially protected site types, which typically are small in area: springs, seepage areas, rich fens, fertile spruce mires, and black alder swamps. In addition, if a site does not meet the demands of the above mentioned acts, but is still locally or regionally a valuable habitat, the forest owner should preserve its characters according to the guidelines of good forestry practices.

As the National Mire Protection Programme cannot be implemented with sufficient speed, drainage of privately owned mires has been quite common. The restoration of the water table in the drained areas through damming and blocking ditches creates a great deal of work and increased expenditure. National guidelines for restoration have been prepared in a working group in 2002. So far, 11,000 ha of mires have been restored in nature reserves, largely with support from EU LIFE funds.

Some mires reserves are provided with information stands, nature paths, and observation towers for the general public to enjoy the mire nature. All mires in reserves are normally open to the public, except during the nesting periods of mire birds and in the case of strict nature reserves.

#### *Preliminary excursion schedule:*

13th July Meet at Rovaniemi Airport and railway station, bus transport to Kittilä (about 3 hours).

14th July Kolari, Teuravuoma: large aapamire of the main aapamire zone. Mire ecotourism. Tornionjoki river valley, cultural objects

15th July Tornio, Kalkkimaa and Tervola, Karhuaapa: calcareous rich fens, rich flora, conservation problems, restoration

Simo, Martimoaapa: Ramsar site, large aapamire and eccentric bog, bird fauna.

16th July Kuivaniemi, Ihanalampi: Land uplift area, succession of young mires, rich fens, ecohydrology. Ylikiminki, Hirvisuo: Aapamire of sedge aapa zone, bird fauna, vegetation.

17th Pudasjärvi, Olvassuo: Ramsar site, Proposed World Heritage site, aapamire, restoration, ground water pumping, reindeer herding

18th July Liminka, Liminganlahti: Ramsar site, land uplift, paludification, shoreline vegetation, bird fauna, flora

Siikajoki and Raahe towns: Culture and history, old wooden town

Siikajoki, Hummastinvaara: Land uplift on poor sand soil, young mires, vegetation, flora, carbon balance

19th July Oulu town, culture and history, possibility for shopping

Lestijärvi, Kivineva: southern aapamire, vegetation and flora

20th July Perho, Salamajärvi: Ramsar site, southern aapamires, locus classicus for aapamire definition, mire site type and complex classification, mosaic of forest and mire, wild forest reindeer, outdoor recreation. Long walk along wooden boardwalk.

21st July Lapua, Alajoki: Mire cultivation, agricultural history, scenery, flood control.

Laihia, Levaneva: Ramsar site, large bogs and aapamires, reservoir, cultural history, hunting and poaching, vegetation, bird fauna. Long walk along wooden boardwalk.

22nd July Isojoki, Lauhavuori: geomorphology, ecohydrology, eccentric bogs, springs, vegetation, flora, highest point in Western Finland.

Kauhajoki, Kauhaneva: Ramsar site, Bogs and aapamires, vegetation, flora, bird fauna.

Parkano, Seitsemien: Restoration, history of forestry and agriculture.

23rd July Turku, Kurjenrahka: southern bogs, outdoor recreation area in a densely populated region  
Perniö, Punassuo: southern bog, structures, vegetation, flora.

Hanko, Stormossen: hemiboreal vegetation, flora, military area, hydrology and succession

*Field conditions:*

Normal wetland field conditions and normal footwear (rubber boots) for mire/wetlands. Some mosquitoes and other insects, especially in the northern localities. Repellent and/or mosquito hat is useful, but the insects are not poisonous and they do not spread diseases apart from ticks in the south. In the north it may be relatively cool (about 15 degrees), and in July between warm periods (up to 30 degrees) it rains rather often.

*Cost:*

Costs of the Total Package: Euro 1000 (includes bus transport from Rovaniemi, during the excursion, and from symposium site to Helsinki, meals and accommodation, programme and excursion and symposium materials)

*Costs of single parts:*

Pre-congress Field trip: Euro 900.

Symposium: Euro 200. (IMCG General Assembly included in the price)

IMCG General Assembly: No cost, but you must arrange own accommodation, meals, and transport

A special rate applies for participants from countries with currency problems. Please contact the organisers for more details.

e-mail: [tapio.lindholm@ymparisto.fi](mailto:tapio.lindholm@ymparisto.fi),  
[raimo.heikkila@ymparisto.fi](mailto:raimo.heikkila@ymparisto.fi)

Additional information and registration form in near future at [www.imcg.net](http://www.imcg.net)



INTERNATIONAL MIRE  
CONSERVATION GROUP

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## And what about peat? EU eco-labels under revision.

by Hans Joosten

In 2001 the European Union revised the criteria for eco-labelling of soil improvers and growing media (SI & GM). The initial ideas of the preparatory commission included the proposal to give an eco-label to growing media that – next to 30% of eco-labelled soil improver – could contain up to 70% of peat.

IMCG successfully argued against this risky proposal with an extensive position paper (see IMCG Newsletter 2001/1 or [www.imcg.net/docum/ecolabel.htm](http://www.imcg.net/docum/ecolabel.htm)). The final EU decision (2001/688/EC) was to NOT allow peat in any eco-labelled growing media and soil improvers. The relevant decision text stated:

“A product shall only be considered for the award of an eco-label if its organic matter content is derived from the processing and/or re-use of waste materials.”

“Products shall not contain peat or any products derived from peat.”

These revised criteria were decided to be valid from 28 August 2001 until 27 August 2006.

The Stichting Milieukeur (the Dutch Competent Body for the European Eco-label) has now been commissioned to revise the criteria again, including a reassessment of the possible use of peat. Stichting Milieukeur appointed SV&A sustainability consultants (the Netherlands) to perform the necessary research activities and process support. An Ad Hoc Working Group will meet for the first time on March 15, 2005. SV&A has prepared an excellent background document for that meeting (Aarts 2005), from which much factual information in this paper is derived.

This paper presents an overview of current issues in order to stimulate within IMCG the discussion on the eco-labelling of peat products.

### *The European Eco-label*

The European Eco-label aims to achieve significant environmental improvements by developing and promoting criteria that push the market forward and that minimise the environmental impacts of a wide range of products and services over their whole life-cycle. To ensure the credibility of the award these criteria should be environmentally strong; based on good science (including the precautionary principle), developed transparently and cost-effectively (with the participation of stakeholders), and reasonably attainable.

The European Eco-label encourages manufacturers, retailers, and providers to apply for the award by publicising their participation in the scheme. It promotes the availability of and information about eco-labelled products and wants to improve consumer awareness and behaviour regarding the

environmentally optimal use of products and services.

### *Soil improvers*

Soil improvers are defined as “materials to be added to the soil *in situ* primarily to maintain or improve its physical properties, and which may improve its chemical and/or biological properties or activity”. In practise soil improvers are primarily applied to improve the physical structure by adding stable organic matter to the soil.

The two main waste streams of organic matter are bio-/green waste and sewage sludge.

### *Sewage sludge*

Sewage sludge is a by-product from sewage plants treating domestic or urban waste waters, septic tanks etc.. The progressive implementation of the Urban Waste Water Treatment Directive 91/271/EEC in all EU Member States has increased the quantities of sewage sludge from 5.5 million tons of dry matter in 1992 to nearly 9 million tons by the end of 2005. Around 45% is currently recycled to agricultural land, 18% is landfilled, and 17% is incinerated. Uncertainties over possible risks for human health and for the environment still hamper the expansion of sludge recycling.

Sewage sludge is currently not admitted directly in eco-labelled soil improvers, but can be included after composting.

### *Organic waste and composts*

In the former EU15 countries, around 35% of bio- and green waste is separately collected, equalling 17 million tons out of the estimated total recoverable potential of 49 million tons. This results in a compost production of around 9 million tons. The total annual amount of bio- and green waste in the new EU25 is estimated to be nearly 60 million tons. This indicates that there is a potential of approximately 30 million tons of compost production in the current EU.

When looking at organic waste reprocessing, Europe can be divided into 5 clusters:

- in Austria, Belgium (Flanders), Germany, Switzerland, Luxembourg, Italy, Spain (Catalonia), Sweden, and the Netherlands, separate collection and composting of organic waste is countrywide implemented. These countries cover around 80% of all organic waste currently reprocessed in the EU;
- Denmark, UK, and Norway have developed a framework for separate collection and composting, which they are now gradually implementing;
- in Finland and France, separate collection, especially in municipal organic waste, is still at a starting point;
- in Spain, Greece, Ireland, and Portugal, separate collection and composting are still very rare;

– for the ten new member states, statistical data for a sound overview are not yet available.

In the past the European Commission tended to favour mandatory separate collection of biowaste throughout the EU by 2010. Mid 2004, it was decided not to produce a separate Biowaste Directive, but to include the subject of separate collection of

biodegradable waste and composting in the Soils Strategy, which is still being developed.

Most composts are applied in low price segments such as agriculture. Relatively low volumes find applications in the production of high quality topsoils or as constituent in growing media (Table 1).

Table 1: Compost sales and market shares in selected EU countries in 1000 tons (1999 - 2001). After Aarts 2005.

	AT	BE	D	DK	NL	IT	LUX	FR	Total	
	2000	2000	1999	2000	2001	2001	2000	2000	abs	%
Landscaping	102	101		47	82	119	6	156	612	8
Landfill + Restoration	-	8	925	50	-				983	14
Agriculture	102	35	1591	43	615	261	9	426	3082	43
Horticulture	34		185	29	-			41	289	4
Earth works	17	137	370	-	-	379		123	1026	14
Privat gardens	68	74	518	155	82		4		901	12
Export		20	-	-	41				61	1
Miscellaneous	17	16	111	36	-	32	2	74	287	4
Total volume	340	391	3700	360	820	791	21	820	7241	100

Quality control and certification are most important to the market acceptance of composts. At present, all countries with a high level of organic waste recovery have established extensive quality management systems, covering 70 % of the source separated organic waste in Europe. These standards usually exceed the requirements contained by the current European Eco-label for SI & GM.

Since the last revision of the Eco-label in 2001, the number of licence holders of eco-labelled soil improvers has grown from 5 to 17. The 17 producers (13 French, and each 1 in Denmark, Italy, Spain, and Belgium) manufacture 20 eco-labelled products with a total sales volume of 140.000 tons in 2003. The broadening of scope to professional applications has contributed considerably to the volume growth, as the professional market for soil improvers is by far bigger than the hobby market.

#### Growing media

Growing media are materials, other than soils *in-situ*, in which plants are grown. They provide a physical structure in which plants can root. In addition they facilitate the water-gas system in the root environment (including the uptake of nutrients and trace elements). Nutrients and trace elements can be an intrinsic part of the growing medium, but in most cases they are applied separately. Growing media are used in the professional and the hobby market.

In the professional market, growing media are applied on a large scale in greenhouse and container cultures for soil-less food production (mainly greenhouse tomato, cucumber, sweet pepper, and strawberry) and the production of cut flowers and pot plants. In comparison to in-soil cropping, growing media can have substantial benefits: no need for soil decontamination, better utilization of nutrients, lower energy consumption, and higher yields. These

benefits contribute to an ongoing increase in soil-less horticulture throughout Europe.

In the hobby market, growing media are better known as potting soil, used in- and outdoors to grow pot plants.

The total volume of growing media consumed in the EU (hobby and professional) is estimated to be some 45 million m<sup>3</sup> (or 15 million tons) annually. Hobby applications are estimated to account for approximately 60% of this volume (cf. Table 2). or many crops, soil-less horticulture has become standard practice in Scandinavia, the Netherlands, Belgium, and to a lesser extent also in France and Germany. Southern Europe is a growth market due to its vast areas of greenhouse cropping. The volumes of growing media used in Southern Europe have risen considerably over the last years (cf. Joosten 1995).

Large variations exist between countries in the consumption of growing media per capita (Fig. 1) because of differences in the size and structure of professional horticulture (cf. the Netherlands with its large area of soil-less horticulture) and by differences in consumer behaviour (as reflected by the high consumption of potting soil in the Scandinavian countries and the UK [GB]).

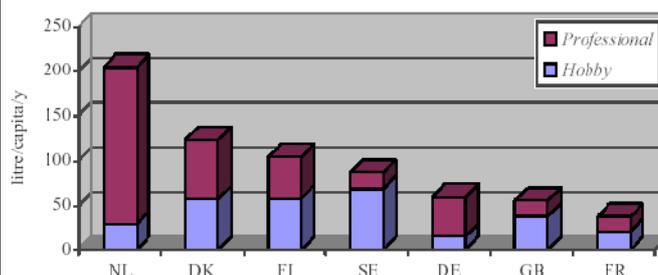


Fig. 1: The volumes of growing media used per capita per year in various EU countries (period 1999 – 2001; after Aarts 2005 based on data of the IPS Horticultural Peat Working Group).

Table 2: Vegetable horticulture and substrate consumption in the EU. After Aarts 2005.

	Vegetable horticulture			Estimated substrate consumption (1000 m <sup>3</sup> y <sup>-1</sup> )						
				Not peat based					Peat based	
	ha	in soil (%)	in substrates (%)	stonewool	perlite	pumice	foam	coir	professional market	hobby market
Benelux	5,500	27	73	435	35	10	8	8	3,000	700
France	2,000	50	50	94	6				800	1000
Germany	180	58	42	7					3,100	900
UK									1,100	1900
Scandinavia	470	15	85	38					900	1300
Austria	400	88	13	5				1	300	100
Spain	35,000	90	10	306	88			9	600	800
Italy	19,000	97	3	47	9			1	2,100	800
Greece	12,500	99	1							
Poland	5,100	88	12							
Hungary	4,000	95	5							
Bulgaria	700	100								
Others	unknown									
Total (known)	84,850	88	12	930	140			30	11,900	7,500

Worldwide, peat based growing media cover some 85 - 90% of the market. Other materials applied are composts, synthetics, and a wide range of natural organic products and minerals.

Many growing media are blends, where the mix of materials is determined by the required end-product characteristics and the availability and price of the raw materials. For composts, various studies indicate maximum feasible levels in growing media of some 20 - 40 %vol., but higher percentages have been reported as well.

So far, no producers of growing media have applied for the EU Eco-label.

#### Quality labels

In the case of growing media and soil improvers, lacking product quality easily leads to damage to the plants or crops. For this reason a variety of quality labels for growing media have been developed, including CAS (France) and BECAS (Belgium), both assuring that legal requirements are met, RAL/GGS (Germany and German speaking countries) with additional requirements regarding the end product, RHP (Netherlands), focusing on the entire production chain (including the retrieval and transport of raw material), and the recently introduced KIWA label (Netherlands), primarily focussing on mineral growing media. In the countries mentioned above the market share of certified professional products is high (60 - 70%). In the hobby market, the market share of certified products is much lower (30%). Also in countries without a 'national' quality mark, the market share of certified products is very low. In view of the ongoing internationalisation and

concentration in the sector, this market share is expected to grow in the coming years.

In the Netherlands, RHP recently carried out a research project to investigate the options to upgrade biomass for large-scale application in growing media. The main hurdle was the necessary reduction in salt levels. An extensive survey of existing and expected techniques did not identify feasible solutions offering a promising perspective in terms of costs and reliability.

#### The 2001 IMCG position

For several years the peat industry has been lobbying the EU to allow peat in eco-labelled soil improvers and growing media. In its interventions in the EU eco-label debate in 2001, IMCG presented the following arguments against such incorporation:

- Allowing peat into eco-labelled products will destroy the credibility of the EU eco-label as peat is not a renewable resource.
- Peat must be considered as non-renewable, because the time needed for its renewal exceeds any reasonable economic and cultural time frame (see also the IMCG Resolution for EU, UN, and GEF in IMCG Newsletter 2004/4).
- Peat extraction is not sustainable. Peat losses from human exploitation are currently 2 - 3 times larger than global peat accumulation. The annual consumption and losses of peat in the EU are larger than its annual accumulation in entire Europe. Most countries from which peat is imported into the EU have a negative peat budget, including all Baltic states.

- Peat extraction destroys various ecological and environmental functions of the peatlands virtually irreversibly.
- The slightly humified Sphagnum peat preferably used for growing media is restricted to raised bogs, that only occur in specific climatic and biogeographic regions. Within the EU, this peatland type has become near to extinct and is consequently a priority habitat in the EU Habitats Directive (92/43/EEG). Outside the EU the type is under threat.
- The eco-labelling of non-sustainably extracted peat is in conflict with many international Conventions, Directives, and recommendations.
- The condition that the peat used in eco-labelled GM “shall come from peatlands where protocols of good environmental management and final restoration practices are applied (i.e. the fulfilment of national and/or international conservation standards)” can not be met, because such protocols do not exist and can not be expected to become available before 2006.
- An eco-label will hardly influence the volume of composts used in professional horticulture, because industry cannot take the risk of using suboptimal materials as long as better alternatives are cheaply available.
- Eco-labelling may lead to a larger use of peat as eco-labelled growing media with peat may penetrate markets that currently use a much larger share of composts.
- The eco-labelling of growing media that contain fossil peat will hinder the development of growing media based on re-used organic wastes as the failing properties of current composts can easily be corrected by adding considerable amounts of fossil peat.
- The challenge to develop renewable alternatives for peat will decrease as eco-labelled fossil peat – mixed with only 30% of compost – will already have the image of environment-friendliness, sustainability, and biodiversity protectiveness, and therefore have the same market-advantages as products that rightfully deserve the eco-label.
- The efforts that already eco-labelled companies have made in the past years to produce and to promote peat-free products will have been in vain.
- The introduction of a new discredited European eco-label will also discredit other environmental labels.

**We concluded: “As eco-labelling of Soil Improvers and Growing Media containing peat will significantly miscredit eco-labelling, we ask you to refrain from awarding an ecolabel to products that contain peat.”**

In preparation of the Eco-label criteria revision, SV&A have now asked IMCG whether its position of 2001 is still standing or if it has undergone any

changes as a result of recent developments. Let’s look closer to the relevant issues.

#### *Protocols, frameworks, guidelines*

SV&A asked: *Are there still no generally accepted protocols for environmental management or restoration of peatlands?*

For peat there are no certificates yet available, which testify that the peat product comes from sustainably managed sources (e.g. paludiculture) or has been extracted in a way, which reflects “wise use” principles. Quality labels such as RHP hallmark in the Netherlands guarantee that the peat has passed a quality check with respect to its suitability as a substrate for horticultural and gardening purposes. Such quality hallmarks have the potential to develop into a certificate that peat has been produced according the principles of “wise use.”

SV&A asked: *Is there still no framework for the identification of peatlands of international importance?*

The criteria for identifying peatlands as Wetlands of International Importance that Ramsar Conference of Parties (CoP8) has adopted in 2002 are not helpful for selection, because – following these criteria – *all* peatlands are internationally important and need special attention for designation.

More practical and detailed guidelines for identifying peatlands of international biodiversity importance have been published by the IMCG (<http://www.imcg.net/docum/criteria.htm> and <http://www.imcg.net/docum/redlists.htm>), but these do not have an official status.

Also these criteria have not been worked out satisfactorily for the ecosystem level, which is particularly relevant for peatlands.

In its Resolution VIII.11 (Additional guidance for identifying and designating under-represented wetland types - including peatlands - as Wetlands of International Importance), the Ramsar CoP8 (2002) has recognized the insufficient consistency between the concept of peatlands (being defined by the presence of peat) and the Ramsar Wetland Classification System (being based on vegetation). Peatlands may occur in almost 20 wetland categories in the Ramsar Classification System, in over 40 habitat types of the EU Habitat Directive, and in over 60 types of Endangered Natural Habitats of the Bern Convention.

CoP7 of the Convention on Biological Diversity (CBD, Kuala Lumpur, 2004) recognized that also the CBD insufficiently addresses the ecosystem-level of wetland biodiversity (CBD VII/4 – 21) and requested a review of the Ramsar classification system in order to develop a definitive classification system prior to 2010 (CBD VII/4 – 28).

The absence of an adequate peatland classification system in these major international conventions and a consequent conservation strategy is particularly pregnant, because peat extraction for growing media concentrates on specific peat types (slightly humified Sphagnum peat) from specific peatland types (raised bogs).

SV&A asked: *Do the Wise Use Guidelines have already led to detailed criteria for 'good environmental management' - both in site selection, extraction and in the restoration phase?*

The IPS/IMCG Wise Use framework (Joosten & Clarke 2002) has provided detailed guidelines for "wise use" of peatlands. "Wise Use" should, however, not simply be equated with "sustainable use" or with "good environmental management" as all these concepts are underlain by different norms. The general IPS/IMCG Guidelines do not formulate concrete and detailed criteria for "good environmental management." Such criteria have to be worked out by integrating international criteria (including Ramsar criteria) with national and regional conditions. The IPS/IMCG concept of "wise use" implies that the same activities may be judged differently under different conditions, e.g. in different countries or for different purposes. This complicates the development of identical criteria for all EU countries.

#### *Conflicts with conventions*

SV&A asked: *Does the IMCG still advocate the position that all peat extraction is in conflict with the Ramsar convention?*

Peat extraction is certainly in conflict with the Ramsar Convention. In its Regina Conference (CoP3 1987) the Ramsar Convention has defined 'wise use' of wetlands as "their sustainable utilisation for the benefit of mankind in a way compatible with the maintenance of the natural properties of the ecosystem." Peat extraction clearly ruins the natural properties of peatland ecosystems both by destroying peat accumulation capacity and the peat storage.

In contrast IPS/IMCG define 'wise use' as "those uses of mires and peatlands for which reasonable people now and in the future will not attribute blame". In this way endless discussions are avoided on what 'sustainable' means, what 'the' (= all) natural properties are, what an 'ecosystem' is, or on the spatial, temporal, and functional boundaries of 'the' ecosystem.

Also the Ramsar Conventions sees some problems in the consistency of its definitions and their compatibility with concepts of other conventions. Therefore the Ramsar Scientific and Technical Review Panel, in its meeting of 12 February 2005, has discussed an updating of the Ramsar Convention's "wise use" and "ecological character"

concepts. The working group involved has proposed to re-define Ramsar "ecological character" as "the combination of the ecological components, processes and ecosystem services that characterize the wetland". Also with this definition, peat extraction remains incompatible with the Ramsar Convention.

SV&A asked: *The [IPS/IMCG] Wise Use Guidelines ... seem to imply that in some cases the harvesting of peat is justified. Is that a fair impression and if so, has this approach already been translated into 'accepted and easily applicable protocols and standards' for peat harvesting? Is there any progress being made in this field?*

The IPS/IMCG Wise Use Guidelines indeed allow peat extraction, provided that the full Framework for Wise Use (Chapter 5 of the book) is applied and a total and integrated cost-benefit analysis has been made that takes all values of peatlands into account. The book presents in its appendices 5 and 6 detailed questionnaires that may form a basis of concrete codes of conducts, protocols, and standards. The book, however, also recognizes that "it is not possible to reduce all complexities to simple principles or single measures" (p. 16) and that "Wise Use is not simple or simplistic and cannot be reduced to formulae" (p. 122). The framework has been practically applied both in nature conservation and in peatland exploitation decisions. "Accepted" protocols and standards for peat extraction, however, do not yet exist and it can be doubted whether "easily applicable" protocols can ever be made.

#### *Peaterring Out*

SV&A asked: *What is your opinion on the gradual replacement of peat in professional applications as presented by RSPB and English Nature in their Peaterring Out report? ... Should a total ban on all types of peat in professional growing media be maintained, even if this would result in the continuing absence of professional growing media in the Eco-label assortment?*

At the end of the 1990's, industry, environmental organisations, and government in the UK jointly agreed to reduce the use of peat in hobby gardening, landscaping, and professional horticulture. The UK Biodiversity Action Plan for lowland raised bogs requires all four UK countries to "undertake and promote research and development of sustainable alternatives to peat to speed up reduction of peat used in both amateur and professional markets." It aims "for a minimum of 40% of total market requirements to be peat-free by 2005 and 90% by 2010."

*Peaterring Out*, a plan that the RSPB and English Nature have worked out with the horticultural consultants Rainbow Wilson Associates, presents a scenario to end all commercial use of peat in the UK in 10 years. The programme aims at conserving the

raised bog peatlands, at securing a sustainable growing media industry in the UK, and at supporting the development of the UK composting industry to avoid that the environmental problems associated with peat extraction are exported to other countries.

The initial huge resentment across the UK industry for the Peatering Out target is gradually turning to acceptance and the interim target of 40% by 2005 will probably be met. Large retailers such as B&Q and Homebase launched far-reaching objectives in peat reduction in their potting soil assortment (B&Q for example 85% in 2006).

The retail market indeed offers the biggest opportunity for the early replacement of peat. Home gardeners need quality products, but their requirements are not as critical as those of professional growers.

The change-over to peat alternatives will be slower in the professional horticulture market. Professional products have to fulfil the highest standards. Growers need to have thorough confidence, knowledge, and familiarity with materials before they will use new materials for commercial crops, on which their livelihood depends. The Peatering Out programme recognises that for many users a gradual phase-out of peat through progressive dilution with other materials will be the most realistic way to work towards ending peat use (Fig. 2).

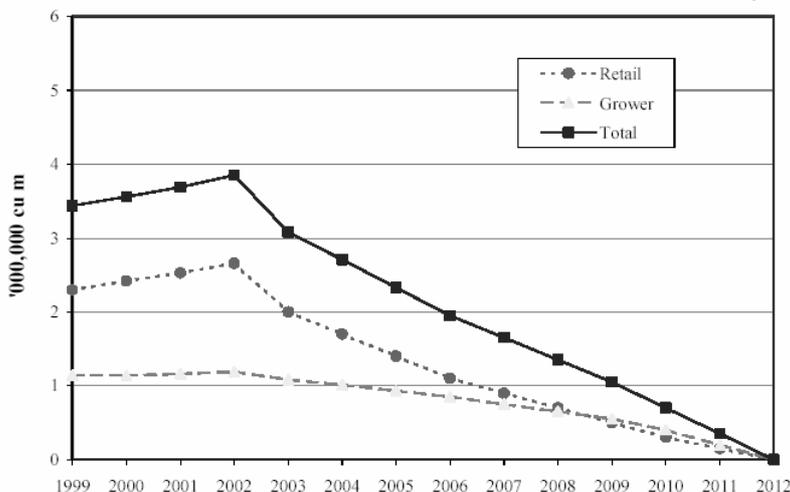


Fig. 2: Proposed/envisaged reduction of the use of peat in the UK taking into account a 5% cumulative annual growth of the use of growing media. (After Peatering Out<sup>TM</sup> 2001).

The scenarios of Peatering Out are distinct for hobby and professional applications as well as for the application of peat in growing media and the use of peat in soil improvers. This is a realistic approach. Peat can easily and immediately be replaced by composts and other renewable products in soil improvers and on the hobby market, where peat is non essential or rather a waste of valuable material. For the more sophisticated growing media, further technical development work is still required to improve the consistency, supply, and cost-effectiveness of low-peat and peat-free growing media.

#### *Eco-labelling peat?*

The question is: what does this all mean for eco-labelling?

Allowing peat in eco-labelled growing media may to some extent stimulate the use of peat alternatives (incl. those from waste materials) among professional growers. I do not expect very large effects, however. Professional growers do not sell peat, but vegetables or plants. A (discredited) eco-label on peat, that forms just a small part of the total production chain, will only marginally improve the “ecological” value of the end product. Therefore the product performance of the growing media will always prevail in high-tech horticulture. Eco-labelling peat will be a step back from the current situation in the amateur sector, where peat-free potting mixes are performing satisfactorily. It will create image problems to the Eco-label, also when different standards are applied to professional and hobby products.

Keeping eco-labelled growing media peat-free will maintain the environmental appeal of the label and will stimulate the use of peat alternatives. It will also hamper the use of peat alternatives in professional horticulture, where current cropping techniques and perceptions (uniform plant growth, high expectations and sensitivity on performance, price etc) prevent a 100% substitution of peat.

#### *Good and evil*

Let it be clear: There is not such a thing as “green” peat extraction. Peat extraction as such is unsustainable, devastating, lethal, destructive, and polluting. Peat extraction is evil.

But so are many other activities we undertake.

And similar to these actions, peat extraction does not happen “for peat’s sake,” but for a purpose that by itself might be good. Whether the balance of the two is “wise” and beneficial depends on how “good” the aim of peat use is or on how much “worse” the alternative is.

This means that we always deal with a trade-off between the loss of peat, peatlands, and associated values at the one side and the societal benefits on the other side. If a small evil helps to prevent a big evil or to achieve a big good, the smaller evil might be allowed.

For that reason the purposes of the peat use and the availability of (sustainable) alternatives for peat for those purposes must play an important role in judging the “wise” use of peat. A sincere judgement can only be done in the framework of the whole product chain of the end product. This might, for example, mean that you allow the use of peat for the cultivation of medicinal plants, but not for that of ornamental plants. Eco-labelling of substrates does not allow for such valuation.

Peat is not a renewable resource. Whereas agriculture and forestry can be sustainable on the spot, peat extraction leads to a continuous expansion of cut-

over peatlands, because the peat can only be extracted once. An eco-labelling approach that aims at minimising environmental impacts shall therefore aim at a replacement of peat by alternative renewable materials.

Allowing peat in growing media may stimulate the beneficial use of composts from waste materials in professional horticulture. But, if “necessity is the mother of invention,” it may also retard the development of a modern greenhouse industry based on fully renewable substrates.

Sooner or later renewable alternatives will become available that are as good and as cheap as fossil peat. A good candidate is sustainably cultivated Sphagnum bryomass, the stuff from which the peat was formed (Gaudig & Joosten 2003). Only with renewable growing media we may guarantee, that professional horticulture can meet societal demands with respect to sustainability, conservation of natural biodiversity, and the reduction of carbon emissions.

#### *Further reading:*

Aarts, R.J.M. 2005. European Eco-label for Soil Improvers and Growing Media Revision 2005 - background document (phase 1) ENV.G.2/SER/2004/0024r. SV&A sustainability consultants, Leiden, 39 p. [http://europa.eu.int/comm/environment/ecolabel/pdf/soil\\_improvers/2005\\_revision/soil\\_improvers\\_growing\\_media.pdf](http://europa.eu.int/comm/environment/ecolabel/pdf/soil_improvers/2005_revision/soil_improvers_growing_media.pdf)

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Joosten, J.H.J., 1995. The golden flow: the changing world of international peat trade. *Gunneria* 70: 269 - 292.

Joosten, H. & Clarke, D. 2002. Wise use of mires and peatlands – Background and principles including a framework for decision-making. International Mire Conservation Group / International Peat Society, 304 p.

Peatering Out™ - towards a sustainable UK growing media industry. <http://www.english-nature.org.uk/pubs/publication/PDF/peatering.pdf>

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## UNDP/GEF Peatland Restoration Project in Belarus

In autumn 2004, UNDP and the Global Environmental Facility agreed to provide co-funding for a US\$3 million project on restoring peatland in Belarus. Using these funds, degraded peatlands at 17 sites across Belarus with a total area of 42 000ha will be restored. This large-scale peatland restoration will be critical to the conservation of the breeding grounds of the aquatic warbler, the most threatened migratory passerine in Europe.

During the Second Polessie Conference in May 2002, the Minister for Natural Resources and Environmental Protection in Belarus Khorushik announced that Belarus intends to recreate wetlands in formerly drained peatlands on an even larger scale. The figure he mentioned was more than 700 000ha.

The Medium-sized Project will address peatland degradation in Belarus by aiming to achieve global benefits in the areas of sustainable land management, climate, and biodiversity while respecting the socio-economic development concerns of local communities. The project will build on both national and international experience to introduce wetland “renaturalisation” on degraded peatlands and will demonstrate the potential for managing degraded peatlands in a way that generates multiple global benefits. To address existing barriers to restoration of degraded peatlands and ensure long-term interest and commitment, actions will be taken at three levels: the strategic level, research and capacity development, and on-the-ground investments in 17 pilot sites. Through this approach the project aims to resolve the

decision-making deadlock relating to the use of degraded peatlands. It will significantly increase the capacity of decision-makers and land-users to deal with restoration issues.

Peatlands have been globally recognized as one of the most valuable and at the same time most threatened types of natural habitats. Belarus is a country with a substantial share of peat- and non-peat wetlands (6.4% of the country is covered by peatlands, compared to 3.4% for the globe on average)<sup>1</sup>. The overall area of natural peatlands in Belarus before drainage (1950) was 2 939 000 ha. As a result of large-scale drainage between 1950-1990, more than 54% of peatlands were drained for peat extraction and agriculture.

#### *Climate change*

The use of 10 billion m<sup>3</sup> of peat in both agriculture and energy has resulted in the release of huge volumes of CO<sub>2</sub> into the atmosphere, contributing substantially to emissions of greenhouse gases in Belarus and a wider region. Peatland drainage has led not only to microclimatic changes, but also regional climate changes across Belarus. Long-term monitoring data indicate that in the wake of peatland drainage the average June-July temperatures in southern Belarus have dropped 0.3-0.70°C, precipitation has decreased by 10-31 mm, and

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<sup>1</sup> *Wise Use of Mires and Peatlands: Background and Principles including a Framework for Decision-Making*, Hans Joosten and Donal Clarke, 2002

extreme frosts and droughts have become more frequent during vegetation period (once every 4-5 years)<sup>2</sup>, which is indicative of regional aridization of the climate. The proposed project will assist in curbing this process. By estimates, the key climate effect of the project will be cessation of huge ongoing CO<sub>2</sub> emissions from mineralising peatlands. Emissions are expected to be reduced approximately 10-12 times. The project will prevent fires occurring annually on this type of degraded lands, which amounts to an additional source of large one-time CO<sub>2</sub> emissions. 2 500-3 000 fires occur on degraded peatlands annually in Belarus alone.

#### Land degradation

Apart from the effect on global warming, there is a possibility that ecological rehabilitation of degraded peatlands will improve microclimate and sub-regional climate through flooding of those areas on the brink of desertification. Today the southern part of Belarus has about 1.5 million ha of dry peat soils used in agriculture. Peat destruction there is huge. 223 000 ha of such agricultural peat soils have completely turned from peatlands into sands and a large anthropogenic desert is establishing itself in the center of Europe. In addition to agricultural lands, there are 209 500 ha of peatlands degraded as a result of peat extraction for fuel. The potential imminent aridisation of micro- and sub-regional climate, mentioned above, will result in declining crops and significant damage to biodiversity. These and other land degradation processes (such as depletion of the organic layer of soils due to contraction, mineralisation, and deflation; reduced flow or desiccation of small rivers and water channels; disappearance of valuable vegetation associations; increases in eutrophication of rivers and lakes) will also be curbed by the project.

#### Biodiversity conservation

Finally, the project will result in conservation and reestablishment of habitats for a number of regionally and globally important species. On the species level the following SPEC I and II bird species were affected by habitat loss as a result of peatland drainage: Greater spotted eagle *Aquila clanga*, Corncrake *Crex crex*, Great snipe *Gallinago media*, Aquatic warbler *Acrocephalus paludicola*. The large-scale drainage resulted in disappearance of 11 plant species in Belarus. 33 species of the European Red List of Threatened Plants shrunk considerably in their population size, including *Caldesia parnassifolia*, *Carex davalliana*, *Carex heleonastes*, *Cladium*

*mariscus*, *Coeloglossum viride*, *Corallorhiza trifida*, *Cypripedium calceolus*, *Cypripedium guttatum*, *Dactylorhiza baltica*, *Dactylorhiza fuchsii*, *Dactylorhiza incarnata*, and *Gymnadenia conopsea*. As the share of extracted and abandoned peatlands grows, populations of the threatened plants continue to decline. According to the estimates of Belarusian scientists, large-scale restoration of extracted and abandoned peatlands would permit the rapid increase in population sizes of such rare plants as *Angelica palustris*, *Bistorta major*, *Betula humilis*, *Carex heleonastes*, *Empetrum nigrum*, *Glyceria declinata*, *Oxyccocus microcarpus*, *Pedicularis sceptrum-carolinum*, *Polemonium caeruleum*, and *Rubus*

#### Project sites



*chamaemorus*. Populations of both rare fauna and flora have declined because the drainage of peatlands has resulted in fragmentation of their formerly continuous habitats. They now occur on the few remaining natural mires and sporadically along the periphery of the anthropogenically damaged sites. Their population numbers are directly related to the habitat area, and rehabilitation of their potential habitats, linking the now segregated sites will contribute to the stabilisation and improvement of the populations of these species in Belarus.

On the habitat level, most of the above-mentioned species are tied to fen mires. Drainage has decreased the area of natural fens drastically, leaving only some 34 thousand ha of this habitat in natural state. Restoration will directly address this loss of habitat.

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<sup>2</sup> V.F. Loginov *Impact of drainage on regional climate in Belarus* // Prirodnye Resursy, - 1997. #1. pp. 24-27

### Wetland restoration in Iraq

Uncontrolled releases of Tigris and Euphrates River waters after the 2003 war have partially restored some former marsh areas in southern Iraq, but restoration is failing in others because of high soil and water salinities. Rapid reestablishment, high productivity, and reproduction of native flora and fauna in reflooded former marsh areas indicate a high probability for successful restoration, provided the restored wetlands are hydraulically able to allow sufficient flow of noncontaminated water and flushing of salts through the ecosystem.

The wetlands in the middle and lower basin of the Tigris and Euphrates Rivers in Iraq were, until recently, the most extensive wetlands in the Middle East.

They are already depicted on an old Sumerian map, dating from the early 5th century B.C., one of the oldest pictures of a peatland in the world.

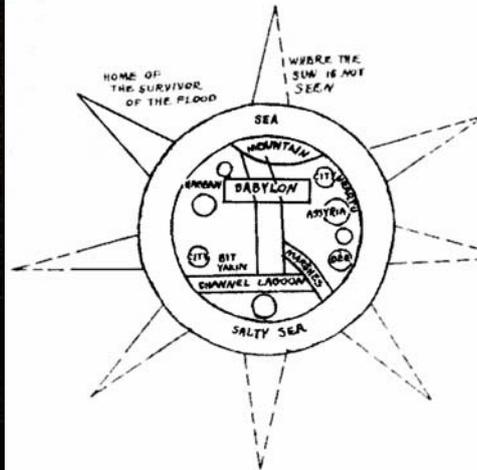
The Marsh Region (> 35,000 km<sup>2</sup>) consisted of extensive shallow marshes covered with reeds in which the groundwater is near or above the land surface. In the non-cultivated semi-marsh areas, a considerable amount of organic material, up to 25 cm

thick, was left behind when flooding receded. A common practise was to burn the organic matter in order to get better grazing land. Therefore there was no uniform deep peaty layer over large areas. Furthermore, peaty layers have been covered by clastic deposits resulting from erosion. The drainage of marshes is an old custom in Iraq, some marshes were drained and reclaimed already in Acheamenian times (550-330 BC).

The increasing utilization of the waters of the Tigris and Euphrates for irrigation in Turkey, Syria and northern and central Iraq has caused a considerable loss of wetland habitat in lower Mesopotamia during the 20th century. Wetland drainage has been taking place on a large scale since the 1950s and, by the end of the 1980s, had already resulted in the conversion of vast areas of former wetland habitat into agricultural land. As early as 1954, Wilfred Thesiger expressed concern at the future of the marshes and the welfare of their human inhabitants. In an article in the Journal of the Royal Geographical Society, he remarked that “in the next few years the marshes will be drained and the marshmen as I have known them will disappear”.

In the last 25 years, the wetlands of lower Mesopotamia and neighbouring Iran have come under considerable pressure from regional conflicts. Much of the fighting during the prolonged Iran-Iraq War (1980-88) took place in and around the wetlands and involved extensive burning, heavy bombing and shelling, and widespread use of chemical weapons.

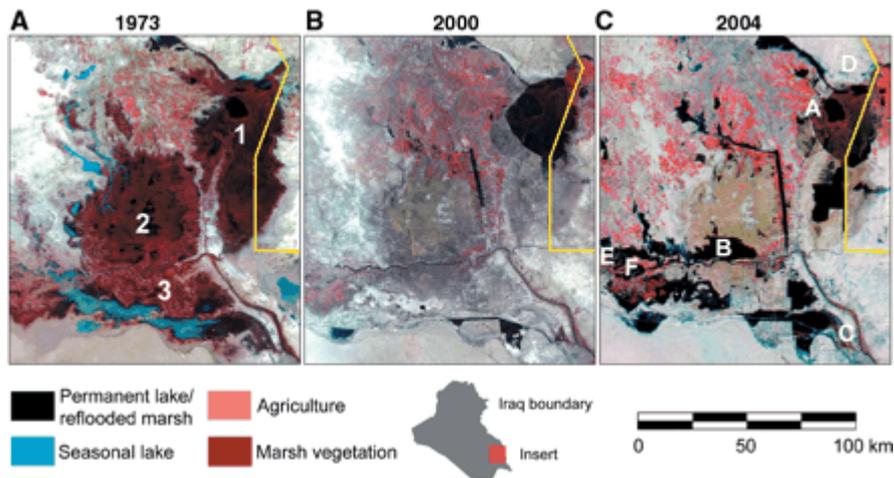
Large areas of reed-beds were deliberately destroyed by Iraqi troops during searches for deserters; heavily armoured boats were used to crash through reed-beds, special reedcutting machines were used, and large areas were simply set on fire. Similar methods were used after the 1991 Gulf War to search for anti-government rebels.



Sumerian map, dating from the early 5th century B.C. (Location: British Library, London) ([www.icra.at/logo\\_original.htm](http://www.icra.at/logo_original.htm), Ryan & Pitman 1998)

The Heavenly Ocean encircles the world, the earth is displayed as a circular disc. Enclosed by the circle of the Earthly Ocean lies an oblong marked “Babylon” with two parallel lines running to it from mountains at the edge of the enclosure, and running on to a marsh which is identified by two parallel lines near the bottom of the circle. The marsh can be identified as the swamp of lower present-day Iraq, its identity secured by the name Bit Yakin at its left end, the so called “Sea Country” and known to be a tribal territory covering marshland. A trumpet-shaped arm of the ocean curves around the right end of the marsh so that its neck touches the lines from Babylon. Despite the absence of a name, it is clear that the parallel lines running to and from Babylon represent the river Euphrates.

In the summer of 1991, the Iraqi Government embarked upon a massive programme of hydrological control and wetland drainage in Lower Mesopotamia, in an area that is roughly delineated by the triangle of Amara, Nasiriya, and Basrah. Officially, the



*A composite Landsat satellite view of the Mesopotamian marshlands (from Richardson et al. 2005)*

*For decades, foreign and even Iraqi researchers were forbidden to enter the marshes, and in the 1990s the government destroyed a research station in the Hammar. As a result, most studies have relied upon Landsat remote-sensing data.*

*After the U.S. invasion in 2003, foreign scientists suddenly gained access, but simultaneously local residents jubilantly broke open the dikes and dams, reflooding nearly half of the marshes. The reflooding has been chaotic, however, and many dikes and dams from the Saddam era remain. But there is plenty of water available also because the U.S. invasion coincided with the end of a long drought. Given the fast pace of dam construction in countries upstream and the possibility of another drought, however, renewed desertification is likely.*

engineering schemes were designed to reduce salinisation problems, to reclaim new land for food production, and to increase the amount of water available for irrigation. As a result of engineering works, a large part of the Central Marshes was drained. One third of the Central Marshes had dried out already by August 1992, two-thirds were dry by mid-1993, some 90% were destroyed by 2000.

Last April a team funded by the Italian government began the first in situ study of the marshes, focusing on a small marsh of about 200 square kilometers called Abu Zirig. Curtis Richardson from Duke University (Durham, North Carolina) used U.S. Agency for International Development (USAID) funding to examine other marsh regions during two visits. He questions whether there is enough water to flush the marshes with clean water to remove the salt and hydrogen sulfide.

During the next year, scientists using Italian funding hope to map the current water flow in the Iraq marshes to understand how to stabilize and revitalize the marshes. The U.S. Army Corps of Engineers is working up a model that details the flow of the Tigris and Euphrates. Meanwhile, the Center for Restoration of the Iraqi Marshes (CRIM), an organization of several Iraqi ministries created last fall in Venice, will put together a "master plan". CRIM is supposed to bring all disparate parties together and to negotiate a deal with Turkey, Syria, and Iran on water rights--a crucial element in any restoration plan. But it is quite obvious that there isn't enough water to restore all the desiccated marshes.



*Ancient battleground. Relief from the palace of Assyrian King Sennacherib, who sent troops to ferret out rebels in the species-rich Mesopotamian marshes in the late 7th century B.C. From: Lawler 2005.*

*Further information:*

Andrew Lawler: Reviving Iraq's Wetlands, *Science*, Vol 307, Issue 5713, 1186-1189, 25 February 2005

Curtis J. Richardson et al.: The Restoration Potential of the Mesopotamian Marshes of Iraq, *Science*, Vol 307, Issue 5713, 1307-1311, 25 February 2005

## More about windmills and blanket bogs

In the previous IMCG Newsletters we have repeatedly reported on windmill parks being planned on blanket bog areas. Besides being windy places, blanket bogs represent systems of high natural value and are listed as priority habitat under the EU Natura 2000 directives.

Following are two cases of wind mill parks planned on blanket mires in the UK and in Spain.

### Zalama in Northern Spain

Zalama blanket bog is located at the Easternmost end of the Cantabrian Range in Northern Spain (on the limits of the Basque Country with Burgos and Cantabria provinces) and this site constitutes the distributional limits of this type of habitat both to the East (in Spain) and South (in Europe).

It occupies the top of Zalama Mountain (1330 m) and originally covered an area of 6.4 hectares. It has been badly affected by fires used by cattle breeders to control pastures, and there is at least evidence of one large fire on the peat 15 years ago. A considerable part of the peat area was subsequently washed away by wind and rain. Nowadays the burnt area is occupied by bare rock and mineral soil.

The blanket bog still covers 4,2 hectares, with a maximum depth of 2 m. Some typical features are small gullies on the Northern slope. The surface is formed of a wet heath dominated by *Calluna vulgaris* and *Erica tetralix*, with scattered populations of *Sphagnum* spp. Several other representatives of mire habitats can be found, such as *Carex echinata*, *Eriophorum angustifolium*, *Juncus effusus*, *J. squarrosus*, *Molinia caerulea*, and *Scirpus cespitosus*. More importantly, among these plants there is *Eriophorum vaginatum*, a very rare species in Spain, with just a few populations in the Cantabrian Range and some in the Catalanian Pyrenees. The Zalama population is quite large and looks healthy. Recently, *E. vaginatum* was included in the Basque Catalogue of Threatened Species of Fauna and Flora, since its only Basque population is precisely Zalama bog.

The blanket bog suffers from a long and slow, but continuous degradation process. For instance, over the last 15 years, there is evidence of continued species loss, namely, a number of the wettest exigent bryophytes (*Gymnocolea inflata*, *Aulacomnium palustre*, *Campylopus flexuosus*, *Dicranum bonjeanii*, *Polytrichum commune*, etc.). On the other hand, an increased presence of typical species of a dry heath has been observed, such as *Agrostis curtisii*, *Erica cinerea*, *Galium saxatile*, *Rumex acetosella* or *Sedum anglicum*. It is also worth noting that the exotic bryophyte species *Campylopus introflexus* is invading the site.

Despite not being displayed in any map (geological, vegetation or others) and despite its small size, it was

not invisible to the eye of peat exploiters. Its exploitation was finally considered non-profitable (although nearby fen areas were destroyed!). And now, beside the fires and the grazing and the threats of exploitation, there is a final attempt to make it vanish: the ecologically friendly way of generating energy: windmills.

Spain is currently second in the rank of windmill installation, after Germany. Mountainous as it is, most Spanish windmills are being placed on the summits of entire minor ranges, where impact on landscape is overwhelming, and worse, reaching areas that had been ecologically well preserved due to difficult access. In other words, Spain is trying real hard to industrialize its final wild areas left (let us hope not the National Parks) in the name of defending the environment. Leaving aside impacts on the landscape, birds, bats, etc., and focusing only on blanket bogs, windmills also threaten the largest and best preserved Spanish blanket bogs in Galicia.

Continuing the energetic self sufficiency policy in the Basque Country, a large windmill area has been projected extending exactly from the top of Zalama mountain (sweeping away all traces of peat) extending over 13 km to the East; the park is projected to include 57 generators of 55 metres high, and a subsequently dense net of construction and access roads on the steep slopes.

Local environmentalist groups and scientists are putting considerable effort into trying to stop the project or lessen its impact. Besides the Zalama blanket bog, there are interesting "para-peaty habitats" or mire-like systems in the nearby site of Salduero, where typical mire plants thrive. These habitats will also be affected by the windmill project. Over the last years, several studies and technical reports have been made to increase the knowledge on the characteristics of the biotope and to show its natural values (Heras & Infante 2003-04). These studies have offered a baseline for the windmill impact evaluation process. There is still some hope to save the Zalama nature as the company has unofficially given up on the first generators, and would even be willing to contribute to a restoration project to amend the damage already done. We are still working...

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Reference:

Heras, P. & Infante, M. 2003-2004. La turbera cobertor del Zalama (Burgos – Vizcaya): un enclave único en riesgo de desaparición. Estudios del Museo de Ciencias Naturales de Alava 18-19: 45-53.

### Lewis wind farm

The Scottish Executive has been warned that it would be acting illegally if it allows developers to build one of the world's biggest wind farms in an environmentally sensitive area that is home to endangered species of birds, including golden eagles (*Aquila chrysaetos*).

The proposed 234-turbine project on the Isle of Lewis would be sited near precious peatlands protected under European law. The plans have outraged environmentalists, who claim that the wind farm threatens colonies of eagles, black-throated divers (*Gavia arctica*) and species of wader.

While the 460ft-high turbines will not infringe on the peatlands, there is concern that an extensive 104-mile road network criss-crossing the landscape will cause irreparable damage. The complex will comprise dozens of pylons, nine electricity substations, and five quarries.

It is claimed the wind farm would be capable of producing 700 megawatts of electricity, enough to power 1m homes and meet 6% of Britain's renewables target by 2010. The Scottish Wildlife Trust (SWT) and the Royal Society for the Protection of Birds (RSPB), however, have warned ministers that backing the scheme would amount to a breach of their legal duty to protect Scotland's natural heritage under the Nature Conservation (Scotland) Act 2004, which came into force last month. They have threatened to refer the project to the European Court if it gets the go-ahead.

Source: The Times

See also: <http://www.imcg.net/threat/03.htm>

### Thorne & Hatfield

Thorne and Hatfield Moors, together with Goole and Crowle Moors, make up the largest complex of lowland raised bog in Britain, a nationally rare and endangered habitat.

Peat extractors Scotts, the firm which owned the site until last year, had a licence for milling peat until 2025, by which time environment activists feared the peatland would be reduced to sand and gravel. But three years ago Scotts agreed to sell its stake for £17.3m and hand the site back to English Nature.

Environment Minister Elliot Morley recently revealed plans to transform the area – the Humberhead Levels, which stretches from Selby in North Yorkshire to Retford in Nottinghamshire taking in Thorne, Crowle and Goole Moors, as well as Hatfield – into a major green tourism destination.

But local groups fear this is not enough to protect the area, which they say is under threat from numerous windfarms. So far there are six applications being considered by the Department of Trade and Industry with a further 13 prospective plans in the pipeline. If all these were given the go-ahead more than 300 turbines would dominate the area. Campaigners fear this will mean the extinction of certain species, like the nightjar (*Caprimulgus europaeus*), from the site.

The plans for the windfarms are part of a Government remit to create more "green" energy, seem in direct conflict with the environment Ministers' aims.

Department of Trade and Industry officials said it was not up to the Government to decide and any planning application would be looked at not only in terms of its use of green energy but also on its environmental impact.

Source: Yorkshire Post Today

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## Peat fires in South East Asia

South-East Asian countries such as Indonesia, Malaysia and Thailand are suffering from haze caused by massive peatland fires again. Although it cannot be concluded that all haze is due to the burning of peat swamp forests and peatlands, the majority of the haze is certainly due to burning of peat (be it forest, agriculture land, or abandoned peatlands) and re-occurrence of fire in previously burnt peat areas. Burnt areas that were not rehabilitated, restored, or managed to prevent fire have become most vulnerable to fire during the dry season. The National Environment Agency of Singapore reported that with the likelihood of an El Niño event in the central Pacific persisting in the next few months, drier-than-average conditions are likely, particularly from May to October.

Below some news gathered by the ASEAN Secretariat:

*Thailand* is under attack by another extreme natural disaster - forest fires, which have flared up almost 3,000 times and damaged more than 65,000 rai of timbered land in the past four months. The annual blazes are likely to devastate the tropical forest for at least another three months. It is predicted this year's forest fires would be the most severe since 1998 due to the El Nino weather phenomenon that brings drought to many Asia-Pacific countries.

Air quality over eastern *Singapore* worsens with bush fires in the east. The Environment Ministry says the Pollutant Standards Index, or PSI, over eastern Singapore is the worst in the country at 56, but it is still in the moderate range. The PSI over western Singapore is the best, at just 36.

Indonesia's *Sumatra* island is cloaked in haze from forest and ground fires. In one of the island's cities, visibility was reduced to about 300 meters. The pollution index classified the air quality as unhealthy in Pekanbaru, the capital of Riau province. In 1997 and to a lesser extent in 1998, haze from forest fires in Indonesia enveloped parts of Southeast Asia for months, causing serious health problems and traffic hazards. Sumatra and Borneo islands, which border Singapore and Malaysia, are the areas usually hardest hit by the choking haze, an annual hazard in parts of Indonesia, usually during the dry-season.

In *Malaysia* fire is sweeping through a massive forest reserve and thick smoke is threatening to reach the KL International Airport, Putrajaya and many parts of Selangor, and southern Perak. Firemen have been battling the bush fire at the Raja Musa forest reserve over the past week and some 80sq km of the 44,488sq km virgin forest has been damaged.

Previous forest fires were usually the result of farmers slashing and burning the land for replanting of crops, or careless smokers throwing still lighted cigarettes into bushes. In Rompin, Pahang, peat fires in dried up swamplands have caused thick white smoke to cover several areas.

Source: <http://www.haze-online.or.id/>

For satellite images of the fires:

[http://earthobservatory.nasa.gov/NaturalHazards/shownh.php3?img\\_id=12759](http://earthobservatory.nasa.gov/NaturalHazards/shownh.php3?img_id=12759)

## Tsunami and Coastal Wetlands

A Special Session on the Tsunami and Coastal Wetlands was organized on 9th February 2005 as part of the Asian Wetland Symposium in Bhubaneswar, Orissa. It was co-organised by the Ministry of Environment and Forests of the Government of India, Ramsar Centre Japan, Chilika Development Authority, Wetlands International, Global Environment Centre and the Ramsar Convention Secretariat. It was chaired by Ms Meena Gupta, Additional Secretary of the Ministry of Environment and Forests and attended by over 150 experts on wetlands, natural resource management and tsunami issues from many countries in the region as well as international organisations. Presentations were made by 15 experts on different aspects of impacts and response options.

Major human impacts of the tsunami include massive loss of life, destruction of coastal settlements and infrastructure, loss of fishing boats and facilities, loss

and degradation of agricultural lands and forests, and salinisation and contamination of water resources.

According to a rapid assessment, the main impacts of the tsunami on coastal wetlands varied according to the location and distance from the epicenter/fault line.

Impacts include:

- Loss or degradation of mangroves and seagrass beds
- Silting and degradation of coral reefs
- Sedimentation/turbidity of coastal waters leading to algal blooms
- Major changes in intertidal flats and coastal lagoons

Certain wetland types played a role in reducing the tsunami impact, especially in locations further from the epicenter, including coral reefs and mangroves, which broke the impact of the waves and absorbed some of the energy and protected areas further inland.

Mangroves stopped people being washed out to sea and trapped debris, reducing further damage.

The main responses to the tsunami by the affected countries in relation to coastal wetlands has been focused initially in rescue and survival of local communities, followed by rapid assessment of impacts which are leading to the development of action plans.

It is now important to provide new, sustainable livelihoods in affected communities linked to wetlands. The top priority is to identify feasible options to provide sustainable livelihoods, which will need to be based on new solutions rather than business as usual (such as over-fishing, inappropriate use of resources, etc.). Incentive and grant schemes need to be considered to help the villagers rebuild their livelihoods and environment and the impacted communities should play a key role in setting priorities in their areas.

Wetlands play an important role in recovery, securing water supply, fisheries, and protection of storm. With 70% of coastal fish species dependent on coastal mangroves or coral reefs, restoration and protection of remaining wetlands will secure future food and freshwater resources.

With respect to protection of the remaining coastal ecosystems, mapping of the remaining intact coastal systems in the region is necessary and areas for protection and sustainable management need to be identified. Sand mining, fishing and other activities must be restricted.

Adequate freshwater resources must be allocated to support the maintenance of estuarine mangroves as well as development of coastal shelterbelts. There is a need for more effective management and

enforcement, in which local communities should take a leading role.

Where the use of soft engineering versus hard structures is concerned, it is reported that in some countries without proper assessment, 70% of hard solutions to coastal protection and erosion fail due to poor siting and design. Furthermore, hard structures may simply transfer problems to adjacent areas. Only under selected circumstances (particularly where infrastructure cannot be moved back from the sea) there may be a role for hard protection structures or eco-engineering structures that combine hard and natural structures.

As the coastal greenbelt (mangroves and coastal forest) can play a crucial role in tsunami and storm damage protection, guidelines need to be developed for immediate and medium term measures for greenbelt development. Local communities must be involved in the development and management to ensure long-term maintenance. Mangrove protection should be combined with beach forests and dune protection.

A broader, regional approach is needed, involving all affected countries, to develop early warning systems. Indigenous warning systems and traditional knowledge should be used and options need to be developed for evacuation of people in vulnerable zones – such as through storm shelters.

The AWS Special Session on the Tsunami and Coastal Ecosystems produced a statement of recommendations. These recommendations can be found at the S.A Tsunami page on the River Basin Initiative website: [http://www.riverbasin.org/ev\\_en.php?ID=3748\\_201&ID2=DO\\_TOPIC](http://www.riverbasin.org/ev_en.php?ID=3748_201&ID2=DO_TOPIC)

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### Ramsar Small Grants Fund

The Ramsar Small Grants Fund was established by Ramsar COP4 in 1990 as a mechanism to assist developing countries and those with economies in transition in implementing the Convention and to enable the conservation and wise use of wetland resources – since that time, it has provided funding and co-funding, up to 40,000 Swiss francs (about US\$ 32,000) per project, for something like 165 projects totaling about 6 million francs.

Suitable project proposals are those which contribute to the implementation of the Convention's Strategic Plan 2003-2008 for the conservation and wise use of wetlands; provide emergency assistance for Ramsar sites; or provide "preparatory assistance" to allow

non-Contracting Parties to progress toward accession. Eligibility is restricted to developing countries and countries with economies in transition.

Projects may be proposed and implemented by any agency, NGO, or individual, but proposals MUST be endorsed and monitored by the Administrative Authority.

The call for proposals is now being made for the 2005 cycle, with a deadline of **30 June 2005** for application and with a decision by the Standing Committee around the end of the year.

For more information surf to:

[http://ramsar.org/key\\_sgf\\_index.htm](http://ramsar.org/key_sgf_index.htm)

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## Regional News

### News from Bulgaria Bulgarian natural heritage under threat

Bulgarian environmental authorities have submitted bills for proposed amendments to the Protected Areas Act and the Biodiversity Act. They would allow construction, privatisation and exclusion of territories from protected areas in the country. Furthermore they provide for exclusion of the public consultation and participation in the process of Natura 2000 establishment and amendment as well as for a considerable limitation of the scope of the national Natura 2000. With the proposed provision the Bulgarian Ministry of the Environment and Water would abdicate from the management of the 5 % of the country area covered by protected areas, and would make the Construction Ministry the leading authority in protected areas.

As an accession country to the EU Bulgaria has committed to transpose EU legislation and adopt EU biodiversity conservation priorities. Bulgaria is also a full member of the Bern Convention which has similar implications as the EU Directives. Being a party of the Convention of the Biological Diversity, and signing the Kiev Declaration of Environmental Ministers the country has also committed to join the global efforts to reduce the loss of biodiversity by 2010. Now that the country has already agreed a secure date for signing the accession agreement with the European Union, the Bulgarian authorities have taken a step backwards in terms of transposition of EU nature conservation commitments. The implications of two bills will in fact increase the loss of biodiversity in two ways: not providing the protection which Natura 2000 and Emerald would provide to 20-60% more of potential sites and by loss of value in protected areas, which the authorities have committed to include in the potential Natura 2000 and Emerald list before their official designation.

The basic principle of democracy, public participation in the decision making on environmental issues required by the Arhus Convention, will be violated if the two bills are adopted. The Convention will be in the near future adopted fully by the EU and again the direction of the planned amendments in the law has contradictory implication to the EU legislation.

Bulgaria is one of the richest countries in Europe with regard to its biological diversity. The recognition of this fact on a national level is still not satisfactory, though. With parliamentary elections coming in less than 6 months time the government has succumbed to interests of big business for large scale construction and expansion of unsustainable tourism business in the most valuable nature areas of the country, violating the very principles of nature protection, and risking to significantly damage the values of wilderness which in fact attract the growing numbers of tourists in the country. Therefore not only

the natural heritage is under threat but the very resource for the tourist sector, whose share in the national economy is getting more and more important.

If the amendments come into force Bulgarian protected areas and biodiversity will be put under the following threats:

- Exclusion of territories from three categories of protected areas with decision taken only by the Minister of the Environment and without any opportunities for public consultation. Most affected will be Nature Parks as they cover almost half of the total area of all protected areas in Bulgaria. The irrevocable canceling of the consultation process from the designation and amendment of Natura 2000 sites contradicts to the context and the provisions of the Arhus Convention and to the recognized good practice of the European Commission which seeks to enhance the transparency of its activities related to the implementation of its policies in all fields. This is also a serious retreat from the good democratic practices of access to information and public participation in discussions on environmental issues established in the last years.
- Serious limitation of the scope of Natura 2000 in Bulgaria.
- Legalisation of illegal constructions, which have already been made in protected areas, either because of directly violating the conservation legislation or finding loopholes in it.
- Opportunities for privatisation of forests and lands, thus fragmentation of property, increasing the numbers of owners and reducing the opportunities for actual management of protected areas
- Allowing "refurbishment" and "reconstruction" as well as "investigation and restoration of cultural monuments" in strict and managed reserves will allow encroachment and disruption of nature in territories where only very limited activities are allowed by the current legislation
- Quick building up with hotels and sport facilities in the most appealing lands in the country. Most threatened are protected areas along the Black Sea coast – Zlatni Pyasatsi Nature Park, Kamchiiski Pyasatsi protected landscape, Strandzha Nature Park, protected dune complexes, Vitosha Nature Park, protected landscapes in the Rhodope Mountain.
- Construction of more than 1000 small hydropower plants throughout the country including inside the protected areas and a number of other potential Natura 2000 sites, thus affecting more than 90% of the national coverage/population of protected habitats and species, such as riparian woods, wet grasslands, freshwater habitats, otter etc.
- Cutting of about 50% of the remaining old growth forests, protected according to the Bern Convention

and Habitats Directive, such as old growth beech forests.

- The territories which are not recognised so far as protected but should be part of NATURA 2000 will lose big part of their nature before their official designation.

The first hearing of the proposal in parliament could be organized in the coming month. Therefore urgent support from the international conservation community will be crucial at this stage.

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### News from Poland

#### The Rospuda valley still under threat

Despite numerous protests of scientists, NGOs, and local communities, the Voivode of Podlasie (provincial governor in north-eastern Poland) and the General Directorate of the State Roads and Highways (GDDKiA) have not changed their decision to build the by-pass road of Augustów through the middle of the most valuable fens in the Rospuda river valley (cf. the IMCG resolution adopted in South Africa 2004). Because of the pressure of people living in Augustów, who did not wish to wait longer for the by-pass road, the local authorities strive to start building the road this year. Some preparatory works have already been launched. However, the Rospuda valley defenders have not given up. It seems that an inventory of threatened plants, which is planned to be carried out this summer, can help to change the authorities' decision. The inventory has been demanded by the Nature Conservation Authority of the Podlasie Voivodeship. Its results have to be part of the environmental impact assessment (EIA) of the Augustów by-pass road. Moreover, on the basis of the results of the inventory the conservationists are planning to create a protection zone for *Herminium monorchis*. According to the recently approved Nature Protection Law, a protection zone for this species should comprise "the whole peatland, where the species occurs."

However, according to the Polish law, there is also a possibility to make a "nature compensation" for the valuable wildlife areas that suffer from the development of infrastructure. The legacy is very popular among the Voivodeship authorities. The question is now: How will the results of the inventory be interpreted officially...?

Ewa Jablonska

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### News from Latvia KRASS Certificate

On 16 November 2004, the Latvian Peat Producers Association awarded the KRASS certificate to one of its members, SIA "Laflora," the largest peat cutting company in Latvia. This document confirms the high quality of the peat of the company and the "environmentally friendly use of its peatlands."

Opinions on that may differ; we prefer that environmentally friendly use of peatlands does not result in pictures like this:



Source: <http://www.ltn.lv/~laflora/>

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### News from Switzerland New Ramsar Sites

Switzerland has designated three valuable as well as very scenic Wetlands of International Importance as part of its celebration of World Wetlands Day, 2 February. Switzerland now has eleven Ramsar sites totaling 8,676 hectares. "Laubersmad-Salwidili" (1,376 ha) is a subalpine area of transitional and raised bogs on the northern slopes of the Alps, in the north-central canton of Lucerne, and is part of the UNESCO Biosphere Reserve "Entlebuch." The "Marge proglaciaire du Glacier du Rhône" consists of the alpine region around the tongue of the Rhône glacier, the source of the Rhône River, and "Vadret da Roseg" includes the alpine alluvial zone at the outflow of two glaciers in the far east of the country. The site description of the "Laubersmad-Salwidili" (1,376 ha; 46°58'N 007° 59'E) site follows: Biosphere Reserve, Biogenetic Reserve. Several types of mountain swamps with fens, transitional mires, and raised bogs of national importance. Located between 1,060 and 1,900 meters asl, forming a mosaic with wet spruce forests and meadows. It supports rare animal and plant species dependent on these ecosystems and plays an important role in water retention. The presence of the Three-toed Woodpecker (*Picoides tridactylus*), the Capercaillie (*Tetrao urogallus*), the Black Grouse (*Tetrao tetrix*) and the Lynx (*Lynx lynx*) is noted on site. A management plan is implemented and work on raised bogs regeneration has been undertaken in 2004. Human activities include pasturage and silviculture, as well as cross-country skiing, hiking, mushroom and berry picking. Ramsar site no. 1444.

### News from UK:

#### Climate change endangers Golden Plover

In the UK, the golden plover (*Pluvialis apricaria*), a bird associated with peatland sites, is breeding significantly earlier than it did 20 years ago. The main prey of the chicks, the daddy-long-legs spider (*Pholcus phalangioides*), does not adapt at the same rate, which could threaten the bird's existence. It is thought that the warmer springs of recent years have prompted the change, and that other species could be affected. The earliest hatching plover chicks, which normally have the best chance of survival, could in future struggle to find food, reducing their overall breeding success and threatening the population size. The golden plover has been protected by EU law since 1979. There are an estimated 1400 pairs nesting in the North Pennines, making it one of England's most important areas for the species.

Source: Hexham Courant

#### Helicopter to the rescue

730 tonnes of cut heather and 40 tonnes of geotextile – a degradable matting used to stabilise bare slopes – will be airlifted on to moorland restoration sites in Bleaklow, Kinder and Arnfield. The cut heather is normally spread by hand, but a specially designed helicopter spreader will be used on Arnfield Moor, near Hadfield.

Helicopters will transport the heather from flourishing areas of the Peak District to the degraded peatland areas in other parts of the park. As well as restoring peatlands, this will benefit wildlife living in the area, and help maintain drinking water quality in local reservoirs. The restoration work is expected to take a few weeks. It is part of the £4.7m Moors for the Future project which involves large-scale renovation work in the area.

The restoration work being carried out by The Moors for the Future Partnership aims to reverse erosion and regenerate vegetation. This should bring about long-term improvement in the blanket bog peatlands.

Source: Manchester

#### Yorkshire Moors to become nature reserve

A multi million pound plan has been proposed to transform Yorkshire peatlands into a nature reserve. The Humberhead Levels stretch from Selby in North Yorkshire to Retford in Nottinghamshire, covering Thorne, Crowle and Goole Moors, as well as Hatfield Moors near Doncaster, which was for years at the centre of a battle over peat extraction.

It is an area of historical, archaeological and conservation value, encompassing the UK's largest lowland raised bogs, and cultural heritage sites including the birthplace of Methodism and valuable Bronze Age and Viking sites.

The landscapes and their biodiversity, archaeological, historic, and environmental features will receive major investment and management.

Source: Yorkshire Post Today

### News from Europe

#### Launching of the European Pond Conservation Network EPCN

The European Pond Conservation Network was established in Geneva on 30 October 2004, during the 1<sup>st</sup> European Pond Workshop which was coorganised by the University of Applied Sciences of Western Switzerland (EIL), the University of Geneva (LEBA), the University of Toulouse III, and the Ponds Conservation Trust.

Ponds are an essential freshwater habitat for plants and animals. They play a central role in maintaining high regional biodiversity. In addition, ponds have many other functions relating to education, recreation, economy, hydrology, culture and aesthetics. Despite their importance, relatively little resources are invested in pond conservation in Europe. Furthermore, the scientific basis for the management and conservation of ponds is currently poor compared to the information available for other freshwater habitats.

These facts motivated the launching of the EPCN with the following mission: "Promoting awareness, understanding and conservation of ponds in a changing European landscape."

Five main objectives, including scientific, political and practical aims have been set out:

- To exchange information on pond ecology and conservation between researchers, managers, and practitioners.
- To promote understanding of pond ecology by encouraging the development and coordination of fundamental and applied research.
- To raise the profile of ponds and guide national and supra-national policies for their protection.
- To promote effective practical pond conservation.
- To disseminate information on the importance, attractiveness, and conservation of ponds to the people.

Future activities include joint research programmes, joint management of the knowledge, joint training, staff exchange, dissemination and communication. Workshops will also be regularly organised to bring all participants together; the 2nd Workshop is already planned and will be held in Toulouse (France), 23 - 25 February 2006.

The network already unites about 50 participants from many countries such as Belgium, France, Ireland, Italy, Hungary, Poland, Portugal, Romania, Switzerland and United Kingdom.

Website & Contact:

<http://campus.hesge.ch/epcn/welcome.html>

### NorBaltWet

NorBaltWet – that is the suggested abbreviation for the new regional initiative within the Ramsar. The proposal was made by Norway in line of Resolution VIII.30 on regional cooperation. Following the experience of MedWet, which joins efforts of the Mediterranean countries, Norway had suggested Nordic Countries, Baltic Countries, and Russia to focus on wetland conservation problems together as many problems are specific to the region. Ramsar authorities supported the idea and discussed it during a number of meetings.

At a meeting in May 2004 with scientists and NGOs present, the general problems and possible focal areas were discussed. During the European regional Ramsar meeting in Armenia in December 2004 the group discussed political and organisational aspects. In March 2005, the discussion had nearly reached a final decision as formulated in a Memorandum. The text has not been finalized yet, but it contains a description of priority areas and possible means and approaches, initial steps and management, and governance aspects.

Among the priorities the implementation of the Global Guidelines on Peatlands was listed, including a report on peatland conservation activity in the countries covered in the regional initiative (volunteered to be prepared by IMCG, guaranteed by Tatiana!). Among the first steps a training focusing among others on peatland restoration and management is planned in Sweden next spring. It was suggested to use the IMCG congress in Finland to promote cooperation within the regional initiative. We will keep you informed on the development.

### EU Green Week 2005

Climate change is happening. Over the past century the average temperature has risen by more than 0.6° Celsius globally and by almost 1°C in Europe. An overwhelming majority of the world's climate experts believe most of the warming is caused by human activities which emit carbon dioxide and other greenhouse gases.

Green Week 2005 will look at all aspects of climate change and in particular at the human factor. Our way of life, production, consumption and transport need to change if we want to halt global warming.

Green Week encourages everyone to “think aloud” about how we can all change our environmental behaviour. It is aimed at local, regional and national decision-makers, businesses, non-governmental organisations and the general public. EU DG Environment will bring stakeholders and experts together to provide the Commission with the knowledge and views to help us further develop effective climate change policies.

In addition to a programme of conferences Green Week also has an exhibition with stands featuring best practices, projects and partnerships.

This year the intention is to make Green Week a carbon-neutral event, meaning that the activities associated with it will not contribute to climate change. As in previous years, efforts to minimise Green Week's other environmental impacts will continue.

<http://europa.eu.int/comm/environment/greenweek>

### News from Argentina UNFCCC Meeting

From 6 to 17 December, representatives of some 200 countries got together in Argentina for the tenth meeting of the Conference of Parties to the UN Framework Convention on Climate Change. The meeting made only modest steps towards cutting future greenhouse-gas emissions. Delegates from many nations complained that the United States and its allies, such as Saudi Arabia, obstructed progress.

Russia's recent ratification of the Kyoto agreement on reducing greenhouse-gas emissions brought the protocol into force, so many delegates were keen to talk about what might happen after 2012, when Kyoto obligations expire. But the United States opposed such discussions, saying that they needed to absorb and analyse lessons learned before committing to new actions.

In future, the United States may have less influence. The 2005 conference will be split into two sections, one of which will be for Kyoto parties only: US delegates may not be able to take part in these sessions.

Saudi Arabia also caused dissent at the meeting, by asking for money from the ‘adaptation fund’ to offset the economic losses it will suffer when petroleum exports are reduced. By 2010, the country expects lost fossil-fuel exports to cost billions of dollars annually. But the adaptation fund is meant predominantly to compensate developing countries and vulnerable island nations.

The European Union and other nations renewed a pledge to deposit \$420 million annually, beginning in 2005, to fund developing countries' efforts. And, following Russia's lead, Indonesia and Nigeria have ratified the Kyoto Protocol.

Source: Nature

### News from the Andes Wetlands Symposium

In February 2005, over 50 government representatives, NGOs, and researchers from all Andean countries (Venezuela, Ecuador, Colombia, Peru, Argentina, Chile, Bolivia) met in Salta, Argentina for the first International High Andean Wetlands symposium. This symposium was organized as one of the actions to give body to the Ramsar resolution on High Andean Wetlands

(CoPVIII 39) and was organized by the interinstitutional consortium Grupo de Conservacion de Flamencos Andinos, in collaboration with the International Paramo Working Group and the Contact Group on Andean Wetlands (IUCN, Birdlife International, Wetlands International, WWF, focal points). Ramsar and some local institutions financed the meeting.

In several dozens of presentations, the present situation of the High Andean wetlands (that are mostly peatlands) was analysed, and similarities and differences were discussed among the participants. As a major result, a technical document including management guidelines was produced, that will be presented at the next CoP of Ramsar.

For more information, contact Robert Hofstede: robert@paramo.org

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### **News from Canada: Lobbying Fuel Peat**

To keep a green election promise to reduce pollution, the Ontario Liberals are committed to closing five coal-fired power plants, which supply 25 per cent of the province's electricity. Ontario is committed to subsidizing alternative energy production to make up for the closing of these coal-fired power plants. Wind, solar, biomass, and other renewable energy sources are being promoted to help solve the energy crisis. Until now, peat fuel is not one of the green alternatives mentioned. The Canadian lobby for the use of peat as a green and renewable alternative to fossil fuels continues, however, stating that "sustainable development of this important natural resource could establish a thriving industry and provide thousands of jobs in the northwestern Ontario economy," and that "converting Ontario's coal-powered plants to peat would save the taxpayers billions of dollars, ensure energy security for the economic engine of the country, reduce pollution, and provide much needed employment in northern Ontario." They are even resorting to such perverse reasonings that bogs produce large amounts of methane, "a gas that has 21 times the negative greenhouse impact of carbon dioxide," suggesting that cutting the bogs up and setting free the stored carbon is not such a bad idea after all.

The immense boreal bogs of northwestern Ontario contain approximately 7 billion tonnes of peat. Coal-fired power plants at Thunder Bay and Atikokan, scheduled to close by 2007, are relatively close to the peat deposits. Both of these power plants import 1.4 million tonnes of coal annually.

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### **News from the USA: Oil before Nature**

The White House budget proposal for 2006 is counting on income from opening up the Arctic National Wildlife Refuge (ANWR) to oil drilling. The White House is projecting that the federal government will take in up to \$1.2 billion over the next two years from oil companies paying for the right to lease oil drilling permits within ANWR.

Such revenues have been part of each previous Bush administration budget proposal, but were blocked by Democrats in Congress. This year, Senate Republicans may have enough votes to override.

The Natural Resources Defense Council (NRDC) argues that oil from the Arctic Refuge will not mean lower gas or heating-oil prices, and doesn't promise any relief from dependence on foreign oil. NRDC concludes that increased energy efficiency is cheaper, faster and cleaner than drilling the Arctic.

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### **News from Indonesia: Fire**

Hundreds of firemen are fighting peatland fires in Selangor, Pahang and also Riau in Sumatra. Near Kuala Selangor, 150 firemen have been fighting a major peatland fire at the Raja Musa Forest Reserve. Another fire is burning adjacent to the KLIA in Sepang. Drainage of peatlands is the root cause of many of the current forest and ground fires and they could have been prevented by better water management.

Since January 2005, Indonesia has been facing a drought linked to a regional El Nino event. The drought, combined with the over-drainage of peatlands creates a situation conducive for peatland fires. The majority of forest fires in Malaysia over the past 10 years have been in peatland areas and most of these fires were located in areas in which the peat had been drained for agriculture or forestry purposes.

The Raja Musa Forest Reserve has been experiencing regular fires over the last ten years. The most recent large scale fire was in August 2004 near Ladang Hopeful. In February-March 2002, a major blaze burnt for more than three weeks and destroyed parts of the forest reserve as well as an oil palm estate owned by Selangor state Agriculture Development Corporation (PKPS). PKPS abandoned the plantation but immediately blocked all the drains on its land and this has prevented fires on its land for the past 3 years – although fires burnt on adjacent land in subsequent years. Other landowners have not followed suit and the current fires are linked to large drains constructed for earlier logging operations and agriculture.

In nearby Sumatra Island, approximately 10,000ha of peatland have already been destroyed in Riau province by the fires in the past week. Not only are the fires a major threat to peatlands in the Riau

province, if the wind direction changes, the smoke will also blow towards Singapore and Peninsula Malaysia.

Active measures must be taken to prevent these fires before they cause major socio-economic, ecological, and economic damage. Special guidelines for development of peatlands need to be developed that take into consideration the complexity and sensitivity of their nature. Where peat swamp forests are concerned, the existing outflow of water from logging canals should be blocked to prevent drying up of peat in the reserves. Water levels in adjacent agricultural land should also be strictly regulated. Steps should also be taken by the district authorities and forest department to prevent inappropriate activities in the forest reserves and adjacent lands.

Furthermore, regular monitoring of water levels should be implemented for early warning signs of fire danger and burnt sites should be rehabilitated to prevent recurrence of fire incidents.

According to the Singapore Meteorological Service, as a result of the current mild El-Nino fires can be expected in Sumatra, Borneo and Peninsula Malaysia during February to March as well as May to October. ASEAN governments have so far responded to the threat of peatland fires by establishing the ASEAN Peatland Management Initiative (APMI) in February 2003. The APMI aims at promoting the sustainable management of peat to reduce the risk of peat fire. An ASEAN Peatland Management Strategy (APMS) is currently being prepared to guide country actions in the period 2006-2020. Malaysia is planning to host the 2nd Regional Meeting on the APMI 18-20th April to review and finalise the APMS.

Faizal Parish, Global Environment Centre  
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### Crucial areas for protection

Eight environmentally sensitive areas including forests located 1,000m above sea level have been identified as crucial areas for protection under the National Physical Plan.

The areas are the peat swamps in Kuala Selangor and Kuala Langat in Selangor, several islands off Klang, parts of the Matang Forest Reserve in Perak, Templer Park in Selangor, Ulu Muda Forest Reserve in Kedah, South-east Pahang Peat Swamp Forest and Tasik Chini in Pahang.

Housing and Local Government Minister Datuk Seri Ong Ka Ting announced that a nationwide plan to protect and preserve the country's mangroves and wetlands had been drafted and would be submitted to the Cabinet for approval.

Under the plan, development in areas gazetted as protected mangrove and wetlands is banned.

Source: The Star Online

### News from South Africa: Spin-offs of the 2004 IMCG Congress

The recent IMCG Congress had numerous positive spin-offs. These include raised awareness amongst the wetland community in South Africa on the importance of wetlands and peatlands. Some others are:

- A hive of activity in terms of international mire and peatland research in southern Africa covering aspects such as the geneses of South African mires, global climatic change, and the impact on conservation and management, and restoration. The encouraging aspect of this interest is that it involves universities from Europe and Canada working together with their counterparts in southern Africa.
- The raised level of awareness has resulted in the distribution of peatland eco regions in South Africa being identified as an important criterion to prioritise catchments in this country for wetland restoration.
- The peat industry realising the critical nature of South African mires are supporting the formation of a self regulating forum with the peat users, promoting wise use of the resource in supporting the use of alternatives and investing in the research to investigate biomass harvesting in reed/sedge mires rather than peat mining.

### Peat mining

Some significant changes are taking place at present with respect to the mining of peat. South Africa is in the process of amending its National Environmental Management Act. The mining of peat is a listed activity in terms of the new amendments. The commissioning of an Environmental Impact assessment will thus be compulsory with any application to mine peat. The new regulations will come into effect in 2005.

The North West Province, the only province in South Africa, where peat is being mined at present is following in the footsteps of the Gauteng Province and is developing a peatland policy. The same process has lead to a no peat mining policy in Gauteng. The province of Mpumalanga (another region where major peatlands occur in our country) are at present also drafting peatland related legislation that discourages peat mining and promotes peatland conservation.

The peat industry has in the mean time reported a decline of more than 40% in output from local mines. This could be ascribed to the closure of 2 peat mines in Gauteng, the use of bark products as alternatives, and the import of foreign peat (mainly via Germany) into our coastal provinces due to high internal transport costs.

### Discovery of a new Mire

The South African Broadcasting Corporation is at present filming a programme on peat use in South African. "Nurse" Rehana Dada, for those of you who were on the southern African IMCG Congress in 2004, is the producer. In the filming of the programme a new mire was discovered in the Kgwane Mountain Nature Reserve. This pristine mire of about a 100ha has got a peat layer in excess of 2 m and is classified as valley bottom reed/sedge fen. This is a major discovery for us in a semi arid South Africa where mires are not that common. The other bonus is that the wetland is within a proclaimed nature reserve and that the provincial authority is busy with an application to designate it as a Ramsar site. South Africa's wetland restoration programme is also involved in this reserve rehabilitation of an other wetland in the catchment of this mire.

### Ramsar Meeting in Uganda, Africa

The next COP will be held in November 2005 in Uganda. The Coordinating Committee for Global

Action Peatlands has requested the IMCG to support the organisation of a side event to raise peatland and mire awareness. Anyone interested to support and have some ideas could please contact Piet-Louis.

Hamba Kahle from Afrika (Go well!)

For more on South African wetlands, contact Piet-Louis Grundling: [peatland@mweb.co.za](mailto:peatland@mweb.co.za)

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### Photo Contest

Floating Island International is sponsoring a worldwide photo contest! You are invited to submit a series of four to eight photographs showing the growth progression of any floating island—natural or manufactured—in any setting. Judging will be based on how well the photographs illustrate the development of the island's aesthetics and its contribution to the biodiversity of the immediate environment.

<http://floatingislandinternational.com/contest.htm>

Lord, grant us the serenity to accept the things we cannot change, Courage to change the things we can, and the Wisdom to know the difference ...

Traudl Sliva has left us on 6. March 2005.  
Our hearts are with Jan and his family.

## New and recent Journals/Newsletters/Books/Reports

### **Natura 2000 Site Designation Process - with a special focus on the Biogeographic seminars**

The new EU Member States possess a significant part of the European natural heritage, including many threatened species and habitats. The establishment of Natura 2000 is a key step to protect and maintain this rich natural treasure for future generations. Therefore it is very important to make sure that the designation of Natura 2000 sites is carried out in a timely and proper way to maintain their conservation interest as a priority of major importance. To realise this, it is essential to inform relevant stakeholders about their roles and responsibilities within the site designation process. This brochure aims to give information about the site designation process and also to help clarify the role of NGOs in the establishment of Natura 2000.

The brochure can be downloaded (PDF, 114Kb) from the website of the Central and East European Working Group for the Enhancement of Biodiversity (CEEWEB).

<http://www.ceeweb.org/a4euhabforum/docs/biogeobooklet.pdf>

The CEEWEB website provides much more background information on policies and conventions related to the conservation of biodiversity in Easter Europe: <http://www.ceeweb.org/>

### **De Vries, H.H. & S. H. Ens (2004). De Limburgse hoogvenen en het veenhooibeestje. De Vlinderstichting, Wageningen. (in Dutch)**

The last observation of the butterfly species *Coenonympha tullia* in the southern part of the Netherlands dates from 1996. Dessication of the raised bog remnants in the south is the major factor in the disappearance of the species here. Although some suitable habitats are still present in the area, they have become increasingly rare. The long term nature conservation goals of the area, the restoration of raised bog vegetation, would stimulate the re-establishment of the species. It specifically needs the presence of *Eriophorum vaginatum* as a host species of the caterpillar.

[http://www.limburg.nl/upload/pdf/Groen\\_De\\_Limburgse\\_hoogvenen\\_en\\_het\\_veenhooibeestje.pdf](http://www.limburg.nl/upload/pdf/Groen_De_Limburgse_hoogvenen_en_het_veenhooibeestje.pdf)

### **Faubert, P. (2004) The effect of long-term water level drawdown on the vegetation composition and CO<sub>2</sub> fluxes of a boreal peatland in central Finland**

This study is providing a better understanding of the potential implications of the global climatic warming on Sphagnum dominated peatlands. The drainage of a part of the peatland began 55 years ago. Vegetation composition of the drained and natural areas was

compared along six transects and analysed by ordination techniques. CO<sub>2</sub> fluxes were measured during the growing season on one transect of the drained area and inferred by modelling. In response to drainage, vegetation composition changed and it was not related to a natural mire margin-mire expanse gradient. In the wetter part of the transect (far from the drainage ditch), gross photosynthesis and total respiration decreased. There was also slightly less CO<sub>2</sub> sequestration than in the drier part. This study suggests for Sphagnum dominated peatlands that the effect of climate change might be reduced by a change of vegetation communities.

Available under:

<http://www.theses.ulaval.ca/2004/21536/21536.html>

### **Schouten, M., Van Ool, M. & Kempenaar, A. (2003) Veen, turf en Vincent van Gogh. Staatsbosbeheer, Assen. (in Dutch)**

Beautifully illustrated booklet on peatlands in general, the peatland colonies in the northeast of the Netherlands, the inspirational role of peatlands in arts, especially with respect to Vincent van Gogh, who spent some months in 1883 sketching and painting the peatland landscape in Drenthe, and the art of bog restoration. More information under [www.staatsbosbeheer.nl](http://www.staatsbosbeheer.nl)

### **Gebühr, M. (2004) Moorleichen in Schleswig-Holstein [Bog bodies in Schleswig-Holstein], Wachholtz Verlag, Neumünster, Germany, 60 p. (in German)**

Bog bodies tell fascinating stories about the daily life in the past. This brochure was published as a museum booklet by the Archaeological State Museum Schloß Gottorf in Northern Germany already in 2002. The brochure was recently awarded with the media award for the best museum publication in 2005. It offers answers to the following questions: What are bog bodies? Why are they so interesting? When were they found? And how are the findings interpreted in modern times? The second part gives a state of the art interpretation of four well-known bog bodies from Schleswig-Holstein. For a price of 7.80 € the book is a perfect gift for everybody interested in the mystery of mires and it is an excellent example how to present scientific findings attractively to a wider public.

[www.wachholtz.de/shop/info.phtml?info=1870100](http://www.wachholtz.de/shop/info.phtml?info=1870100)

### **Landesumweltamt Brandenburg (ed.) (2004) Leitfaden zur Renaturierung von Feuchtgebieten in Brandenburg. 192 p. (in German)**

Peatlands are the most important freshwater wetland type in Germany. These "Guidelines for wetland restoration in Brandenburg" were prepared by the Environmental State Agency of Brandenburg to support local managers in their tasks to rewet and restore peatlands. The book gives a well-illustrated

overview of the hydrogenetic peatland types and how and the knowledge behind these types can be used to restore these vulnerable ecosystems. The second part includes many case studies how to solve technical problems with raising water levels under different (ecohydrological) situations. This guideline together with the guidelines developed by Wagner & Wagner for peatland restoration in Bavaria are excellent tools for peatland restoration in Germany. May many readers consult these works so that more restoration projects will follow the successful ecohydrological approach.

The report can be downloaded in three parts:  
[www.mlur.brandenburg.de/cms/detail.php?id=201900](http://www.mlur.brandenburg.de/cms/detail.php?id=201900)  
 or ordered via email from:  
[infoline@lua.brandenburg.de](mailto:infoline@lua.brandenburg.de)

**Hotes, Stefan 2004. Influence of tephra deposition on mire vegetation in Hokkaido, Japan. Diss. Bot 383, Cramer, Stuttgart, 304 p. €70.00**

Following large-scale explosive volcanic eruptions, vast areas are blanketed by fine-grained volcanic particles known as tephra. This book elucidates the impact of tephra deposition on the vegetation of mires in Hokkaido, northern Japan.

Stratigraphical and experimental studies were conducted to investigate that influence at different spatial and temporal scales. Peat and sediment cores were taken from six mires in different parts of Hokkaido. Macrofossil analysis was employed to detect vegetation changes in relation to tephra deposition during the Holocene. Field experiments were carried out at Sarobetsu Mire in northern Hokkaido to test the impact of artificial tephra layers of different thickness and grain size on a Sphagnum lawn community. The nutrient limitation of Sphagnum and vascular plants was studied in a separate experiment.

The results indicate that tephra thickness is the dominant parameter determining the vegetation response, but grain size and the season also play an important role. The long-term effects of tephra deposition are less pronounced than previously suggested. No evidence for fundamental vegetation changes at tephra layers was found.

For more information:

<http://www.schweizerbart.de/pubs/isbn/bo/dissertati-3443642969-desc.html>

**Ashworth, Nancy 2004. Voices from the Peat - An oral history of the Avalon marshes. Somerset County Council, Taunton, 82 p. GBP 4.99 plus mailing costs**

This nicely illustrated booklet is an oral history of the peat industry over the last 100 years in Somerset. It is a product of the Peat Heritage Project (launched October 2001) that aimed to record, document, and celebrate the social and landscape heritage of the Somerset Peat Industry. The project has traced and interviewed around 20 people involved within the industry over the last 100 years and has pieced together their memories, anecdotes, and experiences to form a comprehensive archive of oral recordings, transcriptions, and photographs. In July 2002 project co-ordinator Nancy Ashworth worked with local artist Kate Lynch and two local schools, Ashcott and Meare Primary schools, to turn the anecdotes into an illustrative format.

The anecdotes in the book picture the social and landscape history surrounding the peat extraction industry from hand-digging techniques, farm life, and floods to archaeological discoveries, including the internationally famous "Sweet Track". The book can be ordered from  
[nancy.burditt@somersetlevels.org.uk](mailto:nancy.burditt@somersetlevels.org.uk)

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## UPCOMING EVENTS

See for additional and up-to-date information: <http://www.imcg.net/imcgdia.htm>

### CANCELLED

#### **First European Chapter meeting of the Society of Wetland Scientists**

*Spring, 2005, Hull, United Kingdom*

### CANCELLED

#### **International workshop on Sphagnum farming**

*29. April to 1st May 2005, Bremen, Germany*

for more information visit:

<http://www.uni-greifswald.de/~sphagnumfarming>

#### **Peatlands in Saxony**

*3-5 June 2005, Dresden-Marsdorf, Germany*

for more information see first circular:

<http://www.ecology.uni-kiel.de/~michael/imcg/dgmt0501.pdf>

#### **Shallow lakes in a changing world**

*5-9 June 2005, Dalfsen, The Netherlands*

for more information contact the conference website

[www.shallowlakes.nl](http://www.shallowlakes.nl).

#### **Coastal Plain Wetlands: Ecological, Landscape, and Regulatory Transformations**

*5-10 June 2005, Charleston, South Carolina, USA*

for more information contact the conference website

<http://www.sws.org>.

#### **INTECOL ESA joint meeting: Ecology at multiple scales**

*7-12 August 2005, Montreal, Canada*

for more information contact the conference website

<http://www.esa.org/montreal>.

#### **Dissemination of ecological knowledge and practical experiences for sound planning and management in raised bogs and sea dunes**

*22-26 August 2005, Latvia and Estonia*

second workshop in the LIFE Co-op project

for more information contact

[g.vanduinen@science.ru.nl](mailto:g.vanduinen@science.ru.nl)

#### **Mire Ecosystems in Northern Europe: Diversity, Dynamics, Carbon Cycle, Resources and Conservation**

*30 August - 2 September 2005, Petrozavodsk, Karelia, Russia*

download first circular:

<http://www.imcg.net/docum/kar05.pdf>

#### **WETPOL Wetland Pollutant dynamics and Control**

*4-8 September 2005, Ghent, Belgium*

for more information contact the conference website

<http://www.biomath.ugent.be/wetpol>.

#### **17th Annual Conference Ecological Restoration: A Global Challenge**

*September 12 - 18, 2005, Zaragoza, Spain*

for more information visit Society of Ecological

Restoration International conference website:

<http://www.ser.org/content/2005Conference.asp>

#### **W3M conference. For wetlands: monitoring, modelling, management**

*September 22 - 25, 2005, Wierzba, Poland*

for more information contact

<http://levis.sggw.waw.pl/wethydro>

#### **Ramsar Cop 9**

*8 - 15 November 2005, Uganda*

for more information contact [www.ramsar.org](http://www.ramsar.org)

#### **IMCG Field Symposium in Tierra del Fuego**

*21 November to 1 December 2005, Tierra del Fuego, Argentina*

See elsewhere in this Newsletter; for more

information visit <http://www.imcg.s5.com/> or read

imcg newsletter 2004\_1.

#### **International Conference on Hydrology and Management of Forested Wetlands**

*8-12 April 2006 New Bern, North Carolina*

for more information visit

<http://www.asae.org/meetings/Forest2006/>

#### **IMCG Field Symposium and General assembly in Finland**

*13-26 July 2006, Finland*

for more information read the congress invitation

elsewhere in this Newsletter, or contact:

<http://www.imcg.net/docum/fi06/fi06.htm>

#### **13th International Peat Congress After Wise Use - The Future of Peatlands**

*9 - 15 June 2008, Tullamore, Ireland*

For more information, surf to IPS conference

website: <http://www.peatsociety.fi/events/events.htm>

**VISIT THE IMCG HOMEPAGE AT**

<http://www.imcg.net>