



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 currently 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 (Piet-Louis Grundling), a Secretary General (Hans Joosten), a Treasurer (Francis Müller), and 2 additional members (Ab Grootjans, Rodolfo Iturraspe).

Fred Ellery, Seppo Eurola, Lebrecht Jeschke, Richard Lindsay, Viktor Masing (†), Rauno Ruuhijärvi, Hugo Sjörs (†), Michael Steiner, Michael Succow and Tatiana Yurkovskaya have been awarded honorary membership of IMCG.

Editorial

This Newsletter comes to you while part of IMCG is already in the Andes on Field Symposium. The Field symposium, with a wide international participation, travels through Ecuador and Colombia and will end with the IMCG General Assembly in Bogota (Colombia) on October 1st, followed by the scientific Congress on October 2nd. (MIND: Dates have swapped for technical reasons!).

This Newsletter contains several documents for the General Assembly, including the agenda, the Biennial Report 2010 – 2012, a Progress Report, and several contributions related to the discussion on the Action Plan.

This Newsletter also contains a call for voting for the Main Board. You all should have received an email explaining the procedure. Use your democratic right and VOTE. And take care that the votes are duly received by Michael Trepel on September 30th, 23.59 h CET at the latest!

The next Newsletter will report on the outcomes of the Field symposium and General Assembly and everything else that you will send to us considering the conservation and management of peatlands all over the world. We plan to produce the next Newsletter in October, so please send in your contributions before October 14th.

For information, address changes or other things, contact us at the IMCG Secretariat.

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A note from the Chair

Word from the chair

Dear fellow members

I have just returned from Rwanda after visiting the Rugezi Mire together with Anton Linström, IMCG member from South Africa and Rwandese colleagues of various conservation NGOs. I am, whilst writing this 'word from the chair', on my way to the IMCG Field Symposium 2012 in the Andes where many of us from across the globe will join our South American friends in the Andes. Mires are once again bringing people together!!

In Rwanda the International Crane Foundation (together with the Endangered Wildlife Trust, South Africa) initiated a project to support the local communities in their conservation efforts of the Grey Crowned Crane. These birds depend on wetlands and there is a strong focus in this project to conserve critical habitat, and thus the focus is on the Rugezi Mire. Rwanda has grown tremendously in the past 10 years from its troubled past since the Genocide and the Great African War (1998 – 2003: when over 5 million people perished in Africa as a result of this war). This growth bides well for Rwanda, but its economy needs energy and unfortunately the country has turned to peat extraction as a means of fuelling its new energy strategy. We will report in subsequent Newsletters more on this and the conservation efforts in Rugezi Mire where IMCG members are involved.

The Field Symposium in the Andes is certainly one of the highlights on the IMCG calendar and we are

looking forward to a great experience in learning more about Paramos mires. The General Assembly, taking place on 1 October, is an important one for the IMCG. Not only is it time to elect a new Main Board but it is also time to reflect on the aims and objectives of the IMCG. We need to rethink how we involve ourselves as members in the strategic plans of the IMCG. Towards this end the IMCG Main Board had a very lively e-mail debate in the past month and Ab Grootjans and Jan Sliva have put some of their thoughts on paper in discussion their perspectives in re-aligning IMCG strategy with a changing world and a dynamic IMCG membership. Please read more about this in the Newsletter and email us your opinions on how to keep the IMCG vibrant and applicable to not only the global mire stage but also to your own regional and local environment.

Let me offer a word of thanks to all of you in the IMCG who makes us such a great organisation. We have many unsung heroes working daily to further wetland conservation at their workplace and communities. To the Andes Field Symposium organisers: Thanks we appreciate the hard work in preparation of our visit and we know it will be a huge success!!

In our Venda language we say: "Ri a luwa rothe!"
(Together we will grow!)

Piet-Louis Grundling
South Africa

IMCG General Assembly 2012 in the Andes

The agenda of the IMCG General Assembly is as follows:

1. Opening and Welcome
2. Minutes of the General Assembly of 17 July 2010, in Goniadz, Poland
1. (available in IMCG Newsletter 2010/3)
2. Balance sheet and the statement of profit and loss
3. Biennial report (2010 – 2012) on the state of affairs in the IMCG.

4. IMCG Action Plan 2010 – 2014
5. IMCG Membership fee
6. Election of the Main Board (with associated elections of the Executive
7. Committee members, incl. chair, by the MB)
8. Conference resolutions
9. Next venues
10. Nomination of Honorary Life Members
11. Any Other Business

IMCG Biennial Report 2010-2012

This is the sixth Biennial Report of the International Mire Conservation Group. According to the IMCG constitution, adopted at the IMCG General Assembly in Quebec 2000, the IMCG Main Board shall present a biennial report on the state of affairs in the Society and on its policy to the biennial General Assembly. According to the IMCG constitution, the IMCG financial year is the calendar year.

This report concentrates on IMCG internal organisational issues.

1. General Assembly

The IMCG General Assembly 2010 was held on 17 July 2010 in Goniadz, Poland. The draft minutes were published in IMCG Newsletter 2010/3. The four resolutions adopted during this General Assembly were sent to the relevant governments and institutions.

2 Main Board

A Main Board consisting of Olivia Bragg, Eduardo García-Rodeja, Ab Grootjans, Piet-Louis Grundling, Rodolfo Iturraspe, Hans Joosten, Tapio Lindholm, Tatiana Minaeva, Francis Müller, Eric Munzhedzi, Faizal Parish, Line Rochefort, Shengzhong Wang, Jennie Whinam and Leslaw Wolejko was installed in 2010 following the 2010 election procedure. As there were exactly 15 candidates for 15 Main Board positions, and in accordance with article 9.1 of the constitution, no voting was necessary and all candidates were included in the new Main Board.

The Main Board had a meeting in Goniadz, Poland on 17 July 2010, see the minutes in IMCG Newsletter 2010/3. Further communication in the Main Board took place via internet.

3 Executive Committee

The election of the IMCG Executive Committee (EC) by the Main Board took place after the instalment of the Main Board in 2010. In the period 2010-2012 the Executive Committee consisted of Piet-Louis

Grundling (chair), Hans Joosten (secretary), Francis Müller (treasurer), and Rodolfo Iturraspe and Ab Grootjans as additional EC members.

In the reporting period the EC held no separate meetings. Regular contact was maintained via internet. Personal exchange was furthermore guaranteed via external meetings of EC members.

4. Secretariat

The secretariat consisted of the secretary-general Hans Joosten and his assistant John Couwenberg. During the reporting period the secretariat was expanded with Susanne Abel for membership administration.

5 Membership

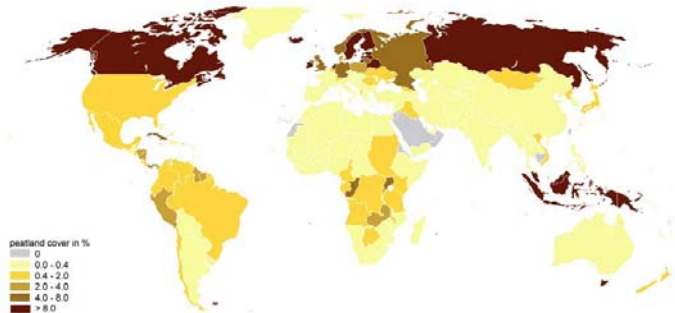
An overview of the development of membership in the period 2002 – 2009 is given in IMCG Newsletters 2006-2 and 2010-2.

On 20 September 2012 IMCG had 583 registered members, including 19 supporters, from 66 countries of the World. This represents an increase of 34 members from 6 additional countries since 31 December 2009. The membership distribution over various continents is as follows:

	31 Dec 2005	31 Dec 2009	20 Sep 2012
Africa	62	76	83
Asia	15	22	27
Australia	19	22	22
Europe	276	378	393
North America	31	45	47
South America	4	6	11
Total	405	549	583

The data show that IMCG has again succeeded to attract members from outside “Western Europe”, but a European bias is still obvious.

The General Assembly 2010 decided unanimously to confer honorary membership on Fred Ellery, Lebrecht Jeschke and Michael Succow.



Map showing peatland distribution according to countries



Map showing in green countries with IMCG members 31 December 2009

Balance sheet and the statement of profit and loss

by Francis Muller, treasurer

At the time of our last General Assembly in Poland in 2010, we had 9.368,40 Euro on our account. On September 8, 2012 we had, if we do not take into account the money that is flowing through our bank account for the Andes excursion, a total of 7.950,57 Euro, i.e. 1.418 euro less.

After the General Assembly in Poland, we launched an appeal to our members and to the readers of our newsletter for donation. This was not very successful and brought only 1.213 Euro, from 4 donators. There was no other significant source of income

We supported one of our members to participate in the Canadian meeting in June 2012, where the situation of mires in the different provinces of Canada was discussed (644 Euro) and supported the trip of our Chairman to Ecuador / Colombia (1.426 Euro). We paid two years of membership to the European Habitat Forum (309 Euro) and spent 178 Euro on new IMCG pamphlets.

These small figures illustrate that most IMCG work is done on a volunteer basis, or with funds that do not transit through our account. The fact that we already for years spend more money than comes in is worrying and must urgently be addressed.

Until now we had no membership fee, we could consider introducing a fee. I suggest the fee would be kept on a voluntary basis, not to exclude any members who cannot afford it. But, then, the fee should not be too low, so that the proportion of exchange and banking costs remains not too important. The decision to introduce a membership fee would give a little more work to your treasurer, but he is ready for it. A membership fee would also help to update the list of our members and supporters: of the 583 persons listed in our database, several haven't given us any news for years: we can ask them for possible participation.

IMCG financial sheet 2010/12, from one General Assembly to the next

9.368,40 €		result before General Assembly in Poland 26.06.2010
Income	Expense	Specification
1.213,19 €		Donations
37,50 €		sales Wise Use book
1,70 €		social parts of Crédit Coopératif
	177,79 €	printing flyers
	113,08 €	banking costs
	2.070,35 €	travel costs IMCG board
	309,00 €	EHF membership 2010 & 2011
1.252,39 €	2.670,22 €	TOTAL
	7.950,57 €	present result on our account on 08.09.2012

Election IMCG Main Board 2012

Dear fellow IMCG members, after a call to step up, we have received 18 nominations for the IMCG Main Board 2012-2014. To fill the 15 available positions, voting will be necessary. Every IMCG member may cast votes, so please get involved and vote! Check your email box for the call for voting. The 18 candidates are listed below alphabetically. The rules are as follows:

- You, like every other member, have 15 votes.
- Put an 'x' behind every person you want to vote for, to a maximum of 15 persons.
- Put only one 'x' behind every candidate you want to vote for. More than one 'x' behind a name will make your vote invalid.
- You may also vote for less than 15 persons.
- You may not vote for more than 15 persons. More than 15 'x's will make your vote invalid.
- Send your vote as soon as possible to Michael Trepel: mtrepel@ecology.uni-kiel.de, e.g. by using the return button of your email programme.
- Send your vote TO NOBODY ELSE. The voting is by ballot, i.e. secret. Michael has promised only to reveal the numerical outcome of the voting.
- The votes must be received by Michael by September 30th, 23.59h CET. Later votes will be invalid.

The IMCG Secretariat.

name	Country	vote
1 Olivia Bragg	Scotland	
2 Beverly Clarkson	New-Zealand	
3 Eduardo García-Rodeja	Spain	
4 Stefan Glätzel	Germany	
5 Ab Grootjans	Netherlands	
6 Piet-Louis Grundling	South-Africa	
7 Rodolfo Iturrapse	Argentina	
8 Peter Jones	United Kingdom	
9 Hans Joosten	Germany/Netherlands	
10 Tapio Lindholm	Finland	
11 Tanja Minaeva	Russia	
12 Francis Müller	France	
13 Eric Mundzezhi	South-Africa	
14 Faizal Parish	Malaysia	
15 Line Rochefort	Canada	
16 Hamood Ahmed Siddiqui	Pakistan	
17 Jan Sliva	Germany/Czech Rep.	
18 Leslaw Wolejko	Poland	

IMCG Action Plan 2010-2012 – progress report

At the 2006 General Assembly in Tammela (Finland), IMCG adopted its Action Plan 2007 – 2010 (see its publication in IMCG Newsletter 2006-2). Newsletter 2010-2 contains a report on the progress with respect to the IMCG Action Plan over the period 2006-2010.

At the General Assembly meeting in Poland 2010 concern was raised that the Action Plan in its 2007-2010 form was too ambitious. The plan should more consider the character of IMCG as a voluntary network with limited capacity to implement projects by itself, instead of treating IMCG as a professional organisation with unlimited resources. The Action Plan should not be seen as a prescription, but as an invitation to IMCG members to orientate and commit themselves and to stimulate and support each other.

The Action Plan 2006- 2010 provided an analysis of recent developments with respect to peatlands worldwide, identified urgent priorities for mire conservation and formulated a series of aims regarding specific working fields. As the Action Plan was not refreshed in 2010, this progress report 2010-2012 informs on the progress made against the topics identified in that 'old' Action Plan. More details can be found in the IMCG Newsletters 2010 – 2012.

With respect to **wise use**:

In the former reporting period, the Wise Use book was made fully available online in pdf format (http://www.imcg.net/modules/download_gallery/dlc.php?file=150).

Guidelines for the practical application of Wise Use were being developed by IPS with feedback from IMCG. It was agreed that when the full suite of draft guidelines was ready, IMCG would see if a basis exists to finalise the guidelines in a joint effort of IPS and IMCG. In the reporting period the practical guidelines have seen virtually no progress, as IPS decided to give priority to a Responsible Peatland Management Strategy (see below)

With respect to the maintenance and expansion of **effective networks and partnerships**:

Our membership of the **European Habitats Forum** (EHF) was continued. IMCG is since 2008 represented in the EHF by Rudy van Diggelen. EHF is important to influence European (EU) conservation policy and to keep contacts with major conservation organisations in Europe.

The 11th Meeting of the **Ramsar Convention** Conference of the Parties in Bucharest (Romania, 19-

26 June 2012) was attended by a large group of IMCG members and sympathizers, largely as official country representatives. In preparation of the COP 11, the countries' National Reports were analysed. 48 countries explicitly mentioned peatland in their National Report. Other countries, also important peatland countries, were conspicuously missing. Since COP 10, Argentina, Austria, Algeria, Norway, France and Estonia had designated sites with peatlands as Wetlands of International Importance. A side event 'Peatlands: global challenges and opportunities for the Ramsar Convention' was organised at Ramsar COP11 by IMCG together with Wetlands International, the Michael Succow Foundation, the Ministry of Natural Resources and Environmental Protection of the Republic of Belarus, and APB-BirdLife Belarus. The first part of the side event discussed the relation of the Ramsar Convention with other conventions like UNFCCC. The second part was devoted to reporting on the latest developments in global peatland policies with a focus on the FAO initiative (see below). The last part of the side event presented an overview and analysis of the implementation of Res. VIII.17 on Global Action on Peatlands by Ramsar parties (Tatiana Minayeva, Wetlands International, CC GAP Secretariat) followed by presentations on high mountain peatlands, peatland conservation and rehabilitation in Georgia, and peatlands in China. The discussion on draft Ramsar resolutions and future priorities, especially on energy issues, climate change and responsible investment, was short but productive. The cooperation with IPS was during 2010-2012 on a low level (although our joint international peer-reviewed journal *Mires and Peat* functioned well, see below). There is a general feeling that the attitude of IPS in the last years has become less constructive. The IPS approach to the peat and climate discussion has destroyed much of the confidence in IPS' sincerity. In this context the IMCG Main Board decided to inform IPS that IMCG applauds the initiatives of IPS to come to develop a Strategy for Responsible Peatland Management with practical working rules with respect to peatland management, but not to support the document. Representatives of IPS and IMCG met in Stockholm, Sweden in June 2012 in conjunction with the International Peat Congress.

With respect to the identification and stimulation of **synergies between international conventions**, an important contribution had been made by the publication of the Assessment on Peatlands, Biodiversity and Climate Change (Parish et al. 2008). At the occasion of celebrating 20 years Global Environment Facility (GEF), the United Nations Environmental Programme (UNEP) elected in 2011 the project 'Integrated Management of Peatlands for Biodiversity and Climate Change: The Potential of Managing Peatlands for Carbon Accumulation While Protecting Biodiversity' to one of the 20 best projects it ever had financed. The project, with as leading

partners Wetlands International and the Global Environment Centre with collaboration of IMCG and many IMCG members produced, amongst other things, the influential 'Assessment on peatlands, biodiversity and climate change' (Parish et al. 2008) and 'Global peatland restoration manual' (Schumann & Joosten 2008).

Furthermore UNEP devoted its Yearbook 2012 to the emerging issue 'soil organic carbon', in which much attention was paid to peatlands. The influential Yearbook was presented to the assemblage of all Ministers of Environment of the World in February 2012.

Also the Food and Agriculture Organization of the United Nations (FAO) decided to pay more attention to peatlands in the framework of its Mitigation of Climate Change in Agriculture (MICCA) Programme and to start an international initiative for analysis, advocacy and policy advice on the important role of peatlands (and wetlands) for greenhouse gas emissions. An "Organic Soils and Peatlands Climate Change Mitigation Initiative" was launched on 17 May 2012, at the UNFCCC Climate Talks in Bonn, Germany. At the launch event, FAO released the initiative's first publication titled "Peatlands - Guidance for Climate Change Mitigation by Conservation, Rehabilitation and Sustainable Use." Several IMCG members attended the 10th Conference of Parties (COP10) of the United Nations Convention on Biological Diversity (CBD) in Nagoya (Japan) 18-29 October 2010, including Richard Lindsay and Stefan Hotes - on behalf of the IUCN UK Peatland Programme and the UK Wildlife Trusts - and Faizal Parish. A side-event provided the opportunity to make a formal presentation about peatlands and the CBD. Rather depressing was the number of times images of peatlands were shown during the Conference while the speakers talked of 'heathlands', 'upland grasslands', 'forests', 'coastal zones', 'wetlands' - but no-one ever mentioned the words 'peat' or 'peatlands'. Overall, however, there were many references to peatland or peatland-related issues within the Decision Documents of COP10.

The European **Water Framework Directive** (WFD), in force since December 2000, has as its ambitious aim to achieve a good ecological and chemical status of all water bodies in Europe till 2015. Mires and peatlands are (semi-)terrestrial ecosystems with distinct water needs which encompass (and often directly depend on) aquatic ecosystems.

Through Article 1 mires and peatlands are protected by the Water Framework Directive against further deterioration. Mires and peatlands support several ecosystems services for sustainable water management and thus for the implementation of the Water Framework Directive. In an article in IMCG Newsletter 2012-1, Michael Trepel revealed the relation between the various European Environmental Directives and peatland management and showed that managing and rewetting peatlands will support several EU directives at the same time and

additionally reduce the greenhouse gas emissions from the land use sector.

The suggestions for the EU Common Agricultural Policy (CAP) reform have included organic soils for the first time. It is suggested, that conversion of organic soils from grassland to arable land is restricted on farm level from 2011 onward. While it is a good idea to prohibit arable use of organic soils, the reference year 2011 is not a good choice, because it is based on the misconception that land use *change* instead of land *use* is responsible for the environmental problems associated with organic soils.

With respect to **research, expertise, and institutional capacity:**

The **IMCG website** 'www.imcg.net' (webmaster Michael Trepel, mtrepel@ecology.uni-kiel.de) remained the main connection to and between our members. In the reporting period the IMCG website was renewed and refreshed to make it look nicer and more easily navigable. The site has a content management system, which allows to put information faster on the web. The **IMCG Newsletter** (editors John Couwenberg and Hans Joosten, joosten@uni-greifswald.de) appeared in 2010 three times (with 22, 30, and 40 pages), in 2011 three times (24, 62, and 93 pages), including the re-edited excursion guide of the 2010 Slovakia/Poland Field Symposium (edited by Ab Grootjans and Ema Gojdičová) and in 2012 until now two times (44 and 32 pages). The decreased regularity of appearance of the Newsletter since 2008 was largely due to the increased involvement of the secretariat in global Convention policy processes and the lack of time resulting from that. The Newsletters in 2010, 2011 and 2012 paid much attention to the developments in the UNFCCC negotiations.

A **Field Symposium** was organized in Slovakia and Poland 05 – 15 July 2010, an excursion guidebook prepared and published as IMCG Newsletter 2011-3. The excursion guidebook ('Biomes of the Caucasus') prepared by Arnold Gegechkori and Hans Joosten with their collaborators for the IMCG Field Symposium in Armenia and Georgia (1 – 16 September 2009) is being reworked into a book with the same title. The Proceedings of the Finland Congress (2006) are largely finished but still await publishing.

The following **scientific conferences** were (co-) organised by IMCG:

- a special peatlands and mire session at the 'Flood Pulse Symposium' in the Okavango Delta, Botswana from 31 Jan to 5 Feb 2010.
- the IMCG Congress in Goniadz, Poland, 16 July 2010.

Our joint (with IPS) international peer-reviewed journal **Mires and Peat** (editor-in-chief Olivia Bragg, Deputy Editor Jack Rieley, Associate/Assistant Editors Dicky Clymo, Richard Payne, Derrick Lai, webmaster Michael Trepel) developed well (see special contribution of Olivia

Bragg in this Newsletter). The primary purpose of **Mires and Peat** is to publish high-quality research and review articles on all aspects of peatland science, technology and wise use, plus occasional book reviews in this subject area. In 2010, the 100th manuscript submitted since the journal began was published, Special Volume 4 (2008–2010) *Wind Farms on Peatland* completed and Special Volume 7 (2010/11) *Review of Protocols in Peat Palaeoenvironmental Studies* opened. A new Special Volume 9 *The Hula Peatland: Past, Present and Future* opened in November 2011 and continued through 2012. **Mires and Peat** published 15 articles (159 pages) by authors from eleven countries during 2010 and 16 articles (205 pages) by authors from 13 countries during 2011.

With respect to **inventory and monitoring:** The **IMCG Global Peatland Database** was regularly updated by the secretariat, the presentation of the data on the new IMCG website (Africa and Asia) improved. As not all data are yet available on the internet, data were made available to several users on request. A first worldwide compilation of data in the Peatland Database was prepared for the report "The Global Peatland CO₂ Picture. Peatland status and drainage associated emissions in all countries of the World" (Joosten 2009, revised reprint 2010) published by Wetlands International for the UNFCCC discussions. With respect to the **stimulation of peatland inventories**, new data were collected on the presence of peatlands United Kingdom, Ireland, Estonia and Turkey. Progress on the book "**Mires and peatlands of Europe**" has been hampered by health problems of one of the editors. Further attention is required.

With respect to **education and awareness:**

The general IMCG information **flyer** was produced in a new version in the beginning of 2011 and widely made available. A new series of IMCG **postcards** was printed just in time for the IMCG field symposium in summer 2010. The eight postcards highlight mires on all continents and address important mire conservation issues on the backside. The featured photographs were graciously provided by IMCG members; We received more than hundred pictures to choose from. In addition to the postcards, we have produced an IMCG poster with 12 pictures from the member contributions. The poster entitled "Peatlands need water to live." is a contribution to the International Year of Biodiversity. The poster is available in English, French, German and Spanish and can be downloaded as a pdf file in small (A4) and large (A0) paper size from the IMCG web: <http://www.imcg.net/pages/publications/papers.php>

With respect to **greenhouse gases:**

Peatlands are the most concentrated and most important carbon reservoirs of the terrestrial biosphere. They play an important role in global climate regulation by keeping huge amounts of

carbon from being released to the atmosphere. Drained peatlands are currently responsible for some 6% of the global anthropogenic CO₂ emissions. These facts were until recently neglected in the United Nations Framework Convention on Climate Change (UNFCCC) and its Kyoto Protocol. Since 2006 peatland conservation groups have actively lobbied the Climate Convention. First tangible results were achieved at the UNFCCC Conference of Parties in December 2011 in Durban.

The efforts to get peatland rewetting included in the Kyoto Protocol have been described in extenso in IMCG Newsletter 2011-2/3 and earlier IMCG Newsletters. In the UNFCCC meeting in Durban finally the aim was achieved. In the REDD+ text adopted in Durban the provision 'noting that significant pools and/or activities should not be excluded' was included. This addition was crucial to block the option that some countries were pursuing to exclude peat soils entirely from REDD+, because they would be too complicated to handle. Excluding peat soils might solve an accounting problem, but it would also lead to perverse developments. Deforestation would then concentrate on peat swamp forests where the above ground biomass contains less carbon than forests on mineral soils. The associated huge carbon losses from the peat soils would simply be ignored...

In September 2010, the CDM Executive Board decided that plantations on peat soils will no longer be supported by the Clean Development Mechanism (CDM). This decision was taken as a result of concerns expressed by Wetlands International, IMCG and CDM-Watch, who alarmed the Board that CDM projects on peat soil directly result in very high greenhouse gas emissions from drainage for oil palm cultivation.

One of the bottlenecks for implementing peatland rewetting under the Kyoto Protocol is the absence of adequate guidelines for reporting and accounting the carbon benefits. These guidelines are made by the Intergovernmental Panel for Climate Change (IPCC), an independent scientific body, which produces the so called IPCC Methodology Reports.

In December 2010 in Cancun the UNFCCC invited the IPCC to prepare additional guidance on wetlands, focusing on the rewetting and restoration of peatland.

As a result, IPCC decided (May 2011) to produce the "2013 Supplement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories: Wetlands". Several IMCG members are actively involved in producing this Supplement.

IPCC, at its 35th Session in Geneva, June 2012 decided also to produce the "2013 Revised Supplementary Methods and Good Practice Guidance Arising from the Kyoto Protocol" by the target date of October 2013. This second guidance document focuses on parties that have signed the Kyoto Protocol and must, besides reporting emissions and removals to the UNFCCC, also account for emissions and removals under the Kyoto Protocol. The first lead author meeting for drafting a first 'zero order' draft is scheduled for September 2012.

In March 2011, the Verified Carbon Standard (VCS) published its new guidelines for land use carbon projects for the voluntary carbon market. For the first time, it includes options for peatlands.

With respect to diminishing threats to peatlands:

IMCG continued to plea for prevention of peat extraction in pristine mires and valuable peatlands, to combat against the perverse argument of peat being a (slowly) renewable resource, to stimulate the development and use of sustainable alternatives for peat, to prevent further reclamation and overexploitation of remaining tropical peat swamp forests. This was done especially via its Newsletter and other interventions.

Areas of special attention were:

- The Kolkheti mires (Georgia), where continuous pressures from infrastructure development, exploitation of natural resources and privatisation of state owned land were counteracted by local IMCG members and international support (see extensive reports in the IMCG newsletters).
- South African peatlands, where our active IMCG South Africa chapter heavily involved in developments.
- The oil/tar sands of Alberta (Canada) and the impact of their exploitation on peatlands.
- The peatlands in the eastern Mediterranean region (including a special issue of Mires & Peat on the Hula peatland in Israel).
- Peatlands of the Arctic.

Struggling with the Action Plan

by Ab Grootjans

I am one of the Members of the IMCG Main Board who have been struggling with the new IMCG Action Plan 2012-2016. The action plan has been updated and gives the state of the art of problems in mire conservation. It calls again, as all previous action plans, for action on various fronts. Personally, I like these analyses of world problems and possible action on it. But within the Main Board and General Assembly in 2010 it was decided that on the one hand we need a strategic frame to formulate priorities from the global experience, but that on the other hand we should be careful not to formulate tasks that we may not be able to implement. It was said that: "things dealing with IMCG organisation can be arranged in a rather strict way. External activities, however, cannot be regulated rigorously". "With respect to concrete actions we just depend on the capacity of the members". So, the structure of the action plan should indicate how we can organise and prioritise our actions, so that our members can participate more actively in achieving our common goals.

I think a well-documented analysis of problems that we face with mires on a global scale is essential; it may motivate people to act on problems of their choice and capabilities. So, yes we need an updated document on global peatland status, threats and conservation. This is the discussion paper "The state of peatlands across the globe and the tasks of international mire conservation" as presented in this Newsletter.

The problem starts when we try to prioritise activities, because priorities differ in different countries or even continents. And since our organisation consists of volunteers it is very unlikely that prioritising or reducing the tasks identified in a 'state-of-the-art' analysis will end up with more effective and better activities of our members. What we can do is present examples of activities that are not only effective, but that will also motivate members to be active instead of frustrate active people that they did not do enough.

Before going into details about what we could do, or do better, it is perhaps useful to consider what the IMCG cannot do. The IMCG cannot possibly carry out all the tasks that have been suggested in the past and present action plans. The tasks identified by far exceeded the capacity of the IMCG as an organisation. We are all volunteers, also the people behind the secretariat, the web site and the journal Mires and Peat. And if people receive some money for doing structural tasks, the money comes from projects run by individual members. We are not, and do not wish to be, a 'professional' organisation that tries to cover most of the important issues itself. Much frustration on lack of activities comes from the wrong perception that we are a professional organisation. So, in order to avoid tensions within the organisation we have to sort out what our aspiration

will be in the future. What kind of organisation does IMCG want to be?

Suggestions for a more effective use of energy within the IMCG as brought forward in an internet discussion within the Main Board:

- Olivia Bragg proposed that Main Board members get a more formal responsibility for maintaining contacts with regional subgroups ('chapters'), as well as for promoting and reporting on regional mire conservation activities. Possible functions could include: organising meetings, events and campaigns, running national/regional events in collaboration with other organisations, promoting IMCG when attending regional/local peatland events organised by others, pro-actively(!) providing and getting others to provide regional news for the IMCG newsletter or for the IMCG website.
- Michael Trepel, who operates the IMCG website, suggested that the chairperson or another MB member should assist him with deciding what information is suitable for our website, also in order to stimulate members to communicate urgent issues via the website. In a later stage this news can be published in the IMCG Newsletter as well. Publishing information in the Newsletter usually takes more time, since it is our official organ, and the info presented in the Newsletter must have a similarly high quality as the articles published in our journal Mires and Peat.
- In a draft version of the new Action Plan, Piet-Louis and myself have proposed that we should concentrate more on the IMCG *network*. We think that the real power of the IMCG lies in what IMCG members do within the framework of their own professional or voluntary work. Many members perceive such activities as an IMCG 'activity', but this is hardly ever the case. So, we should further build on our present strength instead of trying to initiate new activities that are above our capabilities.

The General Assembly of IMCG in Bogota, Columbia in October 2012 is a good platform to discuss whether we want to stay a volunteer organisation or that we want to move forward as a 'funded' organisation with professional people. Also the suggestions presented above should be discussed. Since I cannot participate in the coming General Assembly, I want to comment on the suggestions to increase participation of IMCG members. Actually the ideas make a lot of sense and some have been practised already in the past.

I have been involved in three regional 'knowledge networks' of the IMCG, none of them official IMCG activities, and all constructed around existing professional activities of the participants (student courses, international projects or meetings organised by other parties). One knowledge network has been

established in Eastern Europe already a long time ago and involves IMCG members in Poland, Slovakia, Czech Republic, Latvia, Finland and the Netherlands. Our activities were largely financed by the Dutch and Danish Governments, various universities (courses), the Nordic Council, the Polish Ecofund, and the Global Environmental Facility. IMCG members involved include, among others, Lesław Wolejko, Viera ŠefferoVá-Stanová, Ema Gojdicová, Jan Seffer, Wiktor Kotowski, Mara Pakalne, Tapio Lindholm and Raimo Heikkilä. They organised financial support for projects, courses, meetings and various books and scientific publications. These members from various countries knew each other already for a long time and had regular contact in IMCG excursions, scientific meetings, project meetings or in the framework of student courses.

The second informal IMCG network exists in Southern Africa and is for a large part the follow up of the IMCG field trip to South Africa in 2004. The network builds on an existing knowledge network around the South African Water Commission (that initiates research on wetland restoration) and also on organisations that actively carry out wetland restoration with the help of local people (Working for Wetlands, Working for Water etc). IMCG members, such as Piet-Louis Grundling, Fred Ellery and Eric Munzhedzi play a central role in this network, but there are strong connections with Germany (Jan Sliva), The Netherlands and Canada (Jonathan Price).

The third informal IMCG network I came in contact with is active in France and Switzerland. People like Andreas Grünig, Michael Steiner, Philip Grosvernier, Angéline Bedolla, and Francis Müller are in regular contact with each other and are attached also via National Knowledge Networks. I was invited to help evaluating mire restoration projects and discuss prospects for restoration in an area with abundant mire types that were partly badly eroded. We knew each other already for years from IMCG excursions and conferences. It was astonishing to see how well our experiences with mire destruction and mire regeneration melted together and led to understanding of the mire systems that excited all participants.

I know that many of such informal IMCG networks exist and they are quite active and successful, not in the least the Greifswald Crew, and they are very well known all over the world. The knowledge networks mentioned above have a lower profile, but appear to be very influential in their region and are capable of organising important IMCG activities when needed. Such informal networks are at the basis of at least eight IMCG field trips and Conferences: Switzerland (1992), France (2002), South Africa (2004), Tierra del Fuego (2005), Finland (2006), Georgia/Armenia (2009), Slovakia/Poland (2010), Bolivia/Columbia (2012). So, it is safe to say that without such informal IMCG networks we hardly exist.

Struggling with the Action Plan II

by Jan Sliva

I fully agree with Ab's statements above. Hence, I have no specific comments regarding his opinion and findings. As Tania Minaeva stressed in one of her last emails related to this issue: "there are two large directions which IMCG is working on

- one direction reflects IMCG political ambitions and influence, working with conventions, governments etc....

- the other direction concerns ground activity and sharing cases and experience – and that is real networking: the original idea of IMCG...."

Related to the first direction, IMCG as an 'organisation' was able to achieve great successes in the past - just naming the Global Action Plan on Peatlands as an example. This part – working on the floors of conventions and (selected) governments has been taken over now by some individual IMCG members like Hans or Tania who act also in name of and on behalf of IMCG but who are in fact supported not by IMCG but by their home institutions. This is a clear well acknowledged situation.

I am sure that our networking is 'ready' and powerful enough to react again operationally if other global activities will be needed, provided that our involvement will be financially supported again by donors (such as WI or Ramsar did in the past).

Related to the second direction – the original idea of IMCG as Tania said – the real networking, ground activity and sharing cases and experience, indeed in this field we could see space for improvement.

People have called for better work of the Secretariat. But honestly, could you imagine what would happen if Greifswald would abruptly stop to work? In spite of the discussed space for operational improvement, in my opinion such a scenario at the moment would definitely lead to the internal collapse of IMCG. And this is the point where I start to be worried.

In my opinion, there are numerous very active and busy experts spread across the globe, and as Ab pointed out, they are partly well organized in regional networks. However, the global communication can be

achieved only through the secretariat and the main board activities.

As Ab correctly stresses, we should not overload the Action Plan with many concrete activities that we as organization are not able to fulfil. But we could try to start (or to continue) some actions that could eventually support the better involvement of the members. Some ideas:

(1) In the past there was a plan to develop and publish online a IMCG expert database (without full names if desired by certain members) that would allow a search for IMCG experts according to the expertise fields, regions etc. Maybe we shall re-activate this idea. I guess, I would have the capacity to take over this job. The direct contact to all members, requesting them filling in the questionnaire etc., would give them the feeling of an active participation in the organization.

(2) We should discuss the option if IMCG is willing (because it is legally able; and if I write IMCG I mean any active member who takes the initiative) to participate in international projects. For example, there are several international programs that fund environmental projects and in which the participation of NGOs is welcomed and recommended. IMCG can theoretically be a partner (not with own personnel but with external assistance of experts), or even the main beneficiary. I guess this issue is worth to be discussed in Bogota too.

(3) It was mentioned in several recent emails that individual IMCG members implement many activities related to mire conservation and wise use, but 'IMCG' as organization has not any overview of them. Maybe we could find a suitable mechanism how to ask the membership to report about their activities in their home countries, about the achievements and failures. In the first step just very shortly, like an info for the database, but later we can focus on concrete cases and encourage the members to report in the web and the Newsletter.

(4) Hans provided honest and reliable justification why in the last times the Newsletter is delayed. Some others Main Board members suggested then to accompany the Newsletter with a regular IMCG 'Bulletin' which would not have the same ambitious

criteria as Newsletter but which would just shortly report about the most actual and urgent IMCG related issues. Generally I like this idea, but I warn to set up such an email-Bulleting as a regular media, as we will be again under pressure to keep the schedule, even though there might be no urgent issue to report. However, you can discuss about the feasibility of a very simple IMCG bulletin, which can be sent irregularly to all membership in case of need to share urgent or important actual issues and tasks.

There was also the discussion to unburden fully or partly the Greifswald secretariat from all duties and works. Principally I like the idea that the secretariat work can be shared. Nowadays times are "electronic and digital" enough that the secretariat does not need to sit under one roof or in one room, and it can be spread among continents. The issue is only the organization and timing. Hence, if for example South Africa (PL, Eric and co.) are willing to take over a part of this job, I would surely support it, and you should figure out the feasible possibilities in Bogotá. What I see as an actual task is how to recruit some few other active members for MB and EC work. Many members are only thankful information recipients, but avoid committing themselves to active IMCG work. This is a hard nut to be solved.

Regarding Piet-Louis' suggestion to nominate Hans for Chair because of his actual global mire-related operations and activities, to be honest I do not have a clear opinion. It is like in the governance of Germany and the USA and the role of the President and the Chancellor. At the moment, we run under the 'German' model, if we support the idea '*hans goes for president*', we just switch to the US model. Nothing much will change. More important is to share the responsibilities within the secretariat so that we can regularly and properly deal with the minimum obligatory tasks that we agree on.

So far for now. Regrettably I cannot be in Bogota and in the paramos, as we just start the peatland project in South Africa and I will miss these days Piet-Louis terribly. We shall look how to clone some IMCG members...

many greetings, groeten & Grüße

Jan

The state of peatlands across the globe and the tasks of international mire conservation

This joint product of various Main Board members is an unripe draft for discussion among the membership and the Main Board as a basis for developing a new Action Plan for IMCG. Comments are welcome at the secretariat: info@imcg.net.

1. Introduction

Twenty years after Richard Lindsay introduced the Cinderella Syndrome concept (1992) to describe the general attitude towards mires and peatlands, the

situation has substantially improved, also thanks to IMCG. This is illustrated by global organisations, including UNEP, FAO and UNESCO (SCOPE) paying increasingly attention to peatlands.



UNEP

UN-FAO

UNESCO-
SCOPE

The Cinderella Syndrome

When the Ramsar Convention was in its early stages of development, wetlands in general were still widely seen as rather useless places, crying out to be drained and turned into productive land. If wetlands in general were unpopular in those days, peatlands, or mires, languished at the very bottom of the popularity stakes. Unfortunately, in many parts of the World it seems that they still do.

Why is this? It's almost certainly largely because a cultural antipathy which is centuries old has shrouded the World's peatlands in such obscurity that now we have a cultural blind spot about the habitat. At its worst, it has hidden their existence entirely from our consciousness, but it hides them from our thinking in many more subtle ways. To most people, peatlands are still wastelands. They are still dangerous. They should be drained, now that we have the technology to do so and finally turn them into something economic.

We do not even have a vocabulary available from common usage to describe the habitat. There was confusion in the Workshop because there are not adequate terms in different languages to describe certain basic types. There are times when one must envy our grassland and woodland colleagues. How can you conserve something when you do not even have a word for it?

*From: Richard Lindsay (1996):
Themes for the Future: Peatlands
– a key role for Ramsar.*

But “Cinderella is still in the kitchen”. Peatlands are still largely considered “wastelands” - areas with no value and consequently low prices and taxes, providing large areas of unoccupied space. Still most mires are destroyed by ignorance, short-sightedness, and stupidity. Still the root cause of mire destruction is *lack*: lack of knowledge, lack of awareness, lack of appreciation, lack of planning, lack of regulation, etc.

More than 80 % of the global peatland area is still in a largely natural state. In contrast, hardly any pristine mires have survived in regions with a large population pressure. Degraded peatlands (i.e. 0.3 % of the global land area, largely drained for agriculture and forestry) are responsible for a disproportional 6 % of the global anthropogenic CO₂-emissions. Recently the growing demand for food, raw materials and energy drives agriculture, forestry and energy provision again into the peatlands, especially in the tropics (Southeast Asia!), where even protected areas are not safe. Also the rising demand for 'green' energy (biofuels, hydropower, wind energy) is a threat, next to oil/gas exploitation, mining and peat extraction.

This paper presents an analysis of the state of global peatlands, the most urgent threats to mires and the consequent priorities for international mire conservation. The paper is a basis for discussion within the IMCG network and an invitation to IMCG members to undertake specific tasks and concrete action.

Table 1: Distribution of peatlands (> 30 cm of peat, situation 2008) over the continents (data: IMCG Global Peatland Database, version July 2012)

Continents	Total area		Peatlands		degraded (not peat accumulating anymore)		
	km ²	% of global area	km ²	% of land area	% of global peatland	km ²	% of peatland
Africa	30,330,508	19.9	128,173	0.4	3.4	14,215	11.1
N & C America	26,774,418	17.5	1,396,151	5.2	36.6	16,535	1.2
South America	17,841,262	11.7	157,322	0.9	4.1	5,452	3.5
Antarctica + Subant. isles	14,038,119	9.2	15,871	0.1	0.4	1,032	6.5
Asia	45,653,482	30.0	1,543,701	3.4	40.4	197,450	12.8
Australasia (Oceania)	8,528,088	5.6	72,845	0.9	1.9	8,261	11.3
Europe	9,482,067	6.2	502,600	5.3	13.2	219,495	43.7
Total	152,647,944	100.1	3,816,663	2.5	100.0	462,440	12.1

2. Peatland degradation: root causes and consequences

The available inventory data show that some 85 % of the global peatland area is still in largely natural condition, especially immense areas in Canada, Alaska and Siberia. Some 500,000 km² are, however, disturbed to the extent that peat is no longer formed and the accumulated peat has partly or totally disappeared (Table 1). Pristine peatlands concentrate in the (sub)arctic and boreal zones, modified peatlands in the temperate and (sub)tropic zones. Annually an additional 5,000 km² (~ 0.1%) of mires is destroyed by human activities, which means an area loss 10 times faster than average peatland expansion during the Holocene. Global peat volumes are decreasing with approximately 0.2 % per year. The most important causes of mire losses are agriculture, forestry, peat extraction and infrastructure development/urbanisation.

2.1. Agriculture

From ancient times, agriculture has been the most important cause of global mire losses. Peatland agriculture conventionally requires a lowering of the water table. As peat largely consists of water, drainage leads to subsidence and compaction of the peat. Consequently, the hydraulic properties of the peat change, which may decrease the peatland's capacity for water storage and regulation. Drainage also leads to oxidation of the no longer water saturated peat layers. As a consequence drained peatlands loose - depending on the climate - some millimetres up to several centimetres of peat per year. These losses are accelerated by addition of lime, fertilizers and clastic material, by water and wind erosion and by (subsurface!) peat fires. The resulting lowering of the peatland surface necessitates a continuous deepening of drainage infrastructure to maintain the same water table relative to the surface, which again enhances peat oxidation, surface lowering, and ditch deepening: 'the vicious circle of peatland utilization' ... (fig. 1). Ultimately subsidence may lead to the loss of productive land when the peatland can no longer be drained, is frequently inundated or becomes subject to salt intrusion.

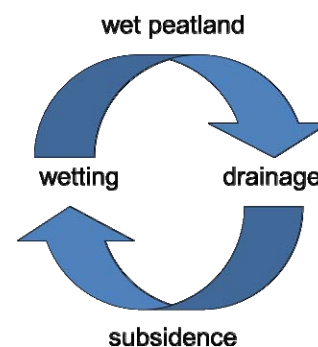


Fig. 1: The vicious circle of peatland utilization'

Peat oxidation leads to increased emissions of greenhouse gasses (CO₂ and N₂O) and nitrate (which may pollute adjacent surface waters). Degraded peatlands are currently - with 2 Gigatons per year - responsible for almost 6% of the global anthropogenic CO₂ emissions.

Particularly in drier climates, water level fluctuations in drained peatlands cause the formation of fissures in the peat, which impede upward (capillary) water flow and lead to frequent and deeper drying out of the soil. Through activity of soil organisms, drained peat soils become loosened and fine-grained and may eventually become totally water repellent. These processes negatively affect:

- dynamic water storage ability, which reduces the capacity for flood control (leading to flooding downstream) and for maintaining base flow (leading to less regular supply of water to downstream areas)
- carbon storage and climate change mitigation capacity
- characteristic biodiversity
- agricultural production capacity and
- the use of peatlands for site typical recreation, hunting and gathering.

The peatlands that have suffered most from agricultural reclamation are the somewhat base- and (after drainage) nutrient-rich fen peatlands in the temperate and subtropical zones of North America, Europe and East-Asia, as well as in tropical mires of sub-Saharan Africa where population pressure result in the exploitation of peatlands (e.g. swamp forests)

for subsistence and commercial agriculture. The typical mire type of the temperate zone, the percolation mire, is consequently globally threatened. Where fen peatlands have been long-term used for low intensity grazing and hay-making, such as in Poland and Belarus, the mire ecosystems have adapted to these practices and have often become very species-rich. Abandonment may then lead to a loss of biodiversity.

In many areas of the World that are unsuited for arable agriculture, peatlands form important grazing lands, e.g. for cattle on the Argentinian pampa mires, sheep and deer on the British blanket bogs, yaks and horses on the peatlands of the Tibetan Plateau, as well as water buffalo in the humid (sub)tropics. Overgrazing of mountain mires may lead to heavy erosion as in Ireland, Lesotho, Kyrgyzstan, Tibet (China) and Mongolia.

Pristine mires are currently increasingly being reclaimed in the tropics. Drainage for subsistence agriculture affects large areas in Southeast Asia and also impacts substantially on biodiversity and ecosystem services where peatlands are more rare (e.g. in Southern and East-Africa). Large-scale industrial conversion of peat swamp forests is ongoing in Malaysia and Indonesia and increasingly in other parts of SE Asia, for palm oil production as well as other commercial purposes.



Freshly reclaimed peat swamp Danami in Panama (Photo HJ 28-09-2011).

Until a few years ago the era of agricultural use of peatlands in the boreal and temperate zones of the World seemed to be over and a trend of retreat to the more suitable mineral soils was observable. In Central Europe this led to the rewetting of many agricultural peatlands, because the maintenance of drainage infrastructure became economically unacceptable.

Currently the quest for land for food, raw materials and energy is driving agriculture back into the peatlands. The demand for biofuels leads, for example in Germany, to a rapidly expanding acreage of mays for biogas generation and to deeper drainage of agriculturally used peatlands.

Natural peatlands have an important function in limiting rapid water losses in the landscape. In the near future, water scarcity will increase conflicts between agriculture and peatland conservation, especially in Africa, the Near East and central Asia, the Far East, western and central Europe, and Central America.

Where peatlands have to be used for agricultural production, the focus must be on the development and implementation of “wet” agricultural production techniques (‘paludicultures’) that combine harvest of useful products with the maintenance of the environmental services of undrained peatlands..

With respect to agriculture, **tasks for international mire conservation** for the period 2012 – 2016 include:

- The prevention of further reclamation and over-exploitation of remaining tropical peat swamp forests
- The re-establishment of adequate management techniques for highly biodiverse peatlands in low-intensity use
- The development and implementation of agricultural production techniques that maintain or restore the environmental functions of undrained peatlands and that play a supporting role in regional economy

2.2. Forestry

The largest boom in peatland drainage for forestry took place in the 1970s, when huge areas in Finland, Russia and Sweden were drained to stimulate tree growth. Currently, no further peatland areas are drained, recognizing that drained peat soils are marginal compared to mineral soils available for forestry. Timber exploitation of peatland forests is, however, largely continued in already drained forests, requiring additional drainage efforts after the first cut. In Russia, where drainage infrastructure is often no longer maintained, a large part of the formerly drained peatland forests is re-paludifying. In the United Kingdom, peatland areas that were afforested in the 1970s and 1980s are currently deforested and rewetted for nature conservation, e.g. in the Flow Country (Scotland). In North America, harvesting of black spruce (*Picea mariana*) and lodgepole pine (*Pinus contorta*) from undrained mires is of economic importance. In Southeast Asia, tropical swamp forests yield some of the most valuable tropical timbers, e.g. ramin (*Gonystylus bancanus*), agathis (*Agathis dammara*), and meranti (*Shorea* spp.). Many of them are being harvested in an unsustainable way.

The increased use of biomass to avoid carbon emissions from fossil fuels may in future stimulate forest exploitation on peat soils. It will be critically important to investigate such plans on their climate effectiveness and to balance possible climate advantages with other environmental disadvantages (long term C-storage, water availability, biodiversity,

etc.). The expansion of forestry (e.g. *Pinus* and *Eucalyptus* plantations) in marginal climates on primary aquifers (e.g. the Mozambique Coastal Plain in south east Africa) or well watered upland areas (e.g. the southern African escarpment) results in the desiccation of groundwater dependant mires due lowering of regional and perched aquifers.

With respect to forestry, **tasks for international mire conservation** for the period 2012 – 2016 include:

- The prevention of further reclamation and over-exploitation of remaining tropical peat swamp forests
- The assessment of the effects of drained peatland forestry on carbon storage, carbon sequestration, water regulation and biodiversity

The European picture

Its long cultural history, high population density and climatic suitability for agriculture have made Europe to the continent with the largest proportional loss of mires globally. 44 % of its present day peatland expanse is not peat accumulating anymore (table 1), outside Russia even 52% of the peatlands are 'dead', in many European countries even more than 90%. 20% of the original European mire area does not even exist as peatland anymore (and thus does not appear in table 1 anymore), i.e. all peat has disappeared and the formerly organic soils have turned into mineral soils.

The European experience shows painfully that an abundance of mires is no guarantee for their survival. Denmark and The Netherlands that once consisted for 23% and 36% of mires, respectively, have managed to destroy their characteristic landscape type almost completely. Finland (= 'fen'-land; Suo-ma = mire-land) with formerly 96,000 km² of mires (28% of the country) has lost 83%, largely since the 1950s by drainage for forestry. In Ireland, 99 % of the raised bogs do not grow anymore. One third of the remaining living raised bog vegetation has been lost in the last decade, because the country does not manage to get its 'traditional' (but presently mechanized) turf cutting for domestic use under control. The peatlands of Polesia in Belarus (Bala-Rus = mire-Rus), Poland and Ukraine, one of the most extensive mire complexes of the former Soviet Union, have been drained on a massive scale between 1960 and 1990. Only in Latvia, Lichtenstein, Norway, Russia and Sweden more than half of the mires have survived.

Large scale peatland reclamation is recently taking place in Southeast Asia, especially in Indonesia and Malaysia. Of the original 155,020 km² of peatswamp forests in Malaysia, Sumatra and Kalimantan about 75,810 km² (49%) was still largely undisturbed by 1990. 20 years later, only 15,600 km² (10%) remained. Responsible is largely the expansion of industrial oil palm and acacia plantations, but also small-scaled agriculture contributes substantially to the destruction of the peatswamp forests. The demand for palm oil and paper is unlimited, especially in the rapidly growing economies of China and India. The

pressure on peatlands in Southeast Asia is that strong, that even protected areas are not safe. Illegal deforestation, drainage, burning and reclamation is taking place in the Berbak and Sebangau National Parks in Sumatra and Kalimantan, respectively. The last largely undisturbed bog dome of Borneo, Mendaram on the border of Brunei and Sarawak, has now on the Malaysian side been released for oil palm production. This will destroy the hydrological balance of the entire peatland, also of the protected Bruneian part with its unique concentric surface structures. The drained peatlands in Southeast Asia are meanwhile responsible for half of the global peatlands CO₂-emissions, tendency: increasing...



Threatened with destruction: Brunei Mendaram: Shorea albida peatland with Pandanus andersonii (Photo HJ 05-07-2011).

2.3. Peat extraction

Peat extraction is probably the most depressive way of peatland exploitation: lifeless, bare, black expanses up to the horizon, created by a peat industry that – like the last hunter-gatherers of the planet – move from one devastated peatland to the next. Current peat extraction is no nostalgic handicraft but a modern, highly technological industry.

2.3.1. Fuel peat

Peat as a fuel is currently important in Finland, Ireland, Russia, Belarus and Sweden. Peat is expensive in extraction and transport and emits more CO₂ per energy unit than other fossil fuels. Therefore, peat as an energy resource is mainly used where there is an absence of other easily attainable fuels, for securing employment in rural areas and for improving energy-political autarchy.

Similar to 1973, when the oil crisis roused new attention to peat in Finland, Sweden and the USA and created interest in fuel peat in Rwanda, Burundi, Senegal, Jamaica and several other states, global energy politics and prices are again affecting the use of peat as an energy source. Sweden has in the last years more than doubled its domestic peat extraction volume and additionally imports cheap briquettes from Belarus. Finland plans to expand peat extraction on an additional 1000 km² of peatland, largely in

areas of high nature conservation value. The Russian Federation has decided in its National Energy Strategy (2010) to increase inland peat consumption for energy with more than 500%, which will enable the country to export more oil and gas. In June 2011 the government of Belarus released 34 km² of protected peatland sites for peat extraction. In September 2012 the government of Rwanda signed a €220-million contract with the Turkish company Hakan Mining and Generation Industry to implement a peat-to-power plant that - with a full capacity of 100MW annually - will increase power generation in the country with 90%. In Ontario und Newfoundland (Canada) increasing volumes of peat are used as a 'climate friendly biofuel'...



Milled peat extraction for energy generation in Belarus (Photo: HJ 30-05-2012).

Without preferential treatment by subsidies or fiscal advantages, peat could generally not compete with other fossil fuels, which have a (sometimes substantially) lower combustion emission factor. Since 1995 (EU-access of Finland and Sweden) and increasingly since 2005 (Kyoto Protocol entering into force) the peat industry therefore lobbies –with selective and wrong arguments - to get peat acknowledged as a 'renewable biofuel'. The industry, for example, claims peat to be 'climate friendly' because it is of botanical origin and much younger than coal. The lobby, however, refuses to acknowledge that burning peat – similar to burning other fossil fuels – mobilizes carbon from a long-term pool in which it otherwise would have remained stored forever.

Peat is not renewable...

Claims of renewability of peat lack a scientific foundation and are based on suggestive use of terms and false arguments. Indeed is peat renewable: it is still being formed at present, like it has been formed since hundreds of millions of years. But this does not distinguish peat from other fossil fuels, as also lignite and coal deposits are still formed today. Not the renewability (i.e. the fact that they can renew) is relevant from a climate point of view but the rate of renewal (i.e. the time period required for their formation). Burning coal means releasing carbon that

has not been part of the atmo- and biosphere for millions of years. Peat burned for fuel is thousands of years old. For coal and peat the rate of renewal is so small that their renewability is irrelevant for society. Renewable with respect to the greenhouse effect means the use of energy sources that replenish as quickly as they are used up (= short rotation). Furthermore, the fact that a type of fuel is renewable does not mean that it is actually renewed. If the fuel is not given opportunity to renew, the use of a "renewable" fuel contributes as much to the greenhouse effect as any non-renewable fuel. Erroneously it is often claimed that after a peatland has been exploited, peat accumulation will re-start and greenhouse gases will be stored again. This may indeed be the case but the rates involved are only a fraction of those emitted by burning thick layers of peat.

The most common argument used to defend the renewability of peat fuel is that less peat is extracted than is annually accumulating. This argument is false for a range of reasons:

- In almost all countries of Europe, in the whole of Europe, and over the whole Earth more peat is disappearing faster than it is being formed. Next to the actual extraction of peat, enormous losses occur in agricultural, forested, and cutover peatlands. In claiming renewability of fuel peat, all of the gains (all peat accumulation in a country or a region) are falsely balanced with only part of the losses (only from peat extraction).
- Much peat accumulating "elsewhere" is not available for exploitation, because of technical or conservational reasons. Peat that is not available is no "resource" and may not be used for balancing losses through peat combustion.
- Peat extraction is not only consuming peat but also destroying the peat accumulating ecosystems. Unless peat is actively regenerating on the cutover sites, the resource will eventually be depleted. And that is the current situation on Earth. The area of cutover bogs that has been restored to peat accumulating ecosystems is negligible and stands in no proportion to the area degraded by peat extraction.
- The peatlands whose CO₂ sequestration is claimed for balancing CO₂ emissions from peat combustion were already part of the greenhouse balance long before the anthropogenic rise of atmospheric CO₂-levels. They were and are part of the natural sink system that compensates natural sources. These natural sources include the methane (CH₄) emissions from natural peatlands.
- Peat extraction and combustion creates an extra source of greenhouse gases. To be greenhouse neutral, additional sources require additional sinks. Peat extraction is mobilising new carbon sources without creating such new sinks. Also in this respect, burning peat does not differ from burning coal.
- Peat combustion is not a climate neutral activity. There may be honest reasons to locally – and with due observation of the many other values of peatlands -, use peat for fuel, but these reasons do not include renewability.

*From the IMCG Resolution
for the European Union, the United Nations and
the Global Environmental Facility,
adopted in Paarl, S-Africa, 2004.*

2.3.2. Horticultural peat

Next to energy generation, the largest consumer of peat is horticulture. Our increasingly urbanising world has a growing demand for permanently available, predictable vegetables, fruits and flowers. As the natural soil is insufficiently homogeneous and reliable for growing uniform, high quality plants at very high productivity levels, cultivation takes place in artificial 'growing media' that allow the sophisticated, integrated management of water, fertilizers and pesticides. *Sphagnum* peat has emerged as the foremost constituent of such substrates. Currently 30 million m³ of slightly humified *Sphagnum* peat ('white peat') are annually used worldwide in producing growing media. In the hobby market, these media ('potting compost') are used indoors and outdoors to grow pot plants.

Slightly humified *Sphagnum* peat is largely restricted to *Sphagnum* raised bogs, which primarily occur in the nemoral and southern boreal zones. Consequently peat extraction for growing media concentrates on a small belt across the globe. In many countries of the European Union, *Sphagnum* raised bog has become near to extinct and is consequently a priority habitat in the EU Habitats Directive (92/43/EEG). In most countries of western and central Europe the stocks of white peat are nearly depleted. To cover the demands, the peat is imported from northern and east-central Europe and Canada in increasing volumes. As demands are rising, stocks are decreasing, and good alternatives in professional horticulture are not (yet) available, the threats of pristine bogs being opened for extraction are growing.

Experiences from years with low peat supply have, however, shown that professional consumers can rapidly and readily adapt to alternatives whenever necessary.

Repeated attempts of environmental NGOs and governments in Europe to reduce the use of peat in horticulture (e.g. Defra in the UK) have had little effect on the volume of peat consumed in professional horticulture, as alternatives that are qualitatively and economically competitive are not yet available in the required volumes. For lower demand consumption, such as in gardening and landscaping, the supplies of alternatives to peat (compost, wood, bark) are declining because of the strong demand for biomass for 'green' energy generation.

As a result, high-quality peats are being used for low-quality applications in increasing amounts. IPS and its member industries uncritically support and stimulate this unwise use in spite of their verbal propagation of the "wise use of peat" concept.

In Germany science and industry are, however, working to develop high quality alternatives to peat on the basis of *Sphagnum* biomass.

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 uptake of nutrients and trace elements. 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 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. 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 m³ (or 15 million tons) annually. Hobby applications are estimated to account for appr. 60% of this volume. Large variations exist between countries in the consumption of growing media per capita because of differences in the size and structure of professional horticulture and by differences in consumer behaviour.

Worldwide, peat based growing media cover some 85 - 90% of the market. Other materials applied are composts, synthetics, and a range of organic products and minerals, including stonewool, perlite, and coconut shell fibres.

The continuing growth of population, urbanisation, and welfare will increase the demand for high performance growing media and soil improvers worldwide. Growing demands are observed in Europe, North-Africa, North America, Japan, China and the Near-East. It is important to direct this demand as far as possible to renewable alternatives and to prevent that it leads to the destruction of valuable peatlands.



Peat extraction for horticulture in Germany (Photo: HJ 26-8-2011).

Peat was used as a soil improver and organic fertiliser in great quantities in agriculture in the years 1950-1980, especially in the Soviet Union. This use has collapsed with the general collapse of the Russian

economy since 1991. As the Russian agricultural practise of bad humus economy (involving burning instead of ploughing under harvest remains) has not substantially improved, the reviving economy may lead to a renewed demand of peat for this extremely low-quality purpose.

To diminish threats to peatlands from horticulture, **tasks for international mire conservation** for the period 2012 – 2016 include:

- To prevent peat extraction in pristine mires and valuable peatlands
- To counter the perverse argument of peat being a (slowly) renewable resource
- To prevent the use of high-quality peats for low-quality applications, such as burning for energy production and private gardening purposes
- To stimulate the development and use of sustainable alternatives for peat, e.g. from bio-/green waste and sewage sludge
- To stimulate the development of high-quality alternatives for peat in professional horticulture , e.g. Sphagnum biomass farming.

2.4. Urbanisation

Traditionally peatlands are considered wastelands - areas without value and consequently with low prices and taxes, providing large areas of unoccupied space. Major cities, such as Amsterdam or Saint Petersburg are built on/in peatlands, as are the airports of Kuala Lumpur, Zurich, Ushuaia and many other cities, whereas peatlands also often serve as urban waste deposits. Substantial peatlands are located in coastal areas and along rivers, where over 50% of the world's human population lives. Their location near to coastlines makes it tempting to convert peatlands to provide infrastructure for towns and harbours.

Also the rising demand for 'green' energy may have a negative impact on the provision of other ecosystem services of living peatlands or may lead to their direct destruction. Flooding for hydro-electricity is responsible for large losses of peatlands in Canada (7,500 km²) and Scandinavia. Hydro-energy projects that may affect peatlands are planned or in execution in Iceland, Malaysia, Cameroun and Brazil, mainly for aluminium production. Similar developments in other countries, e.g. South-Africa (Ingula/Braamhoek mire), Lesotho and Uganda do not affect large areas, but may strongly affect special and rare mire biodiversity.

Since several years the generation of wind energy is rapidly expanding in oceanic and mountain regions, such as in Scotland, on Lewis, in Ireland and in Northern Spain, exactly there where extensive peatlands (blanket bogs!) can be found.

Last but not least, mires are destroyed worldwide for the exploitation of fossil resources. Infrastructure for oil and gas exploitation expands in the peatlands of West-Siberia, Sakhalin and Alaska, but also in the Niger-Delta (Nigeria). In Georgia (Transcaucasia), a railway and oil terminal have been built and a new

harbour is currently being developed in the Ramsar protected Kolkheti National Park peatlands in order to carry Caspian oil to the Black Sea. In the oil sand regions of Alberta (Canada) currently the largest open cast mines of the World are developing, which have already destroyed 150 km² of peatlands.



Starting harbour construction adjacent to the contested Kulevi oil terminal in the Kolkheti National Park Ramsar site, Georgia (photo: HJ 14-09-2012).

A further increasing focus on peatlands as sources of energy and of alternative **raw materials** for petrochemical products can be expected with the decreasing availability of global oil/gas reserves ("after oil"...) and the increasing energy demand of developing countries (China!).

This will not only result in increased peat extraction, but also in an increased use of peatlands for forestry and the cultivation of **energy crops** such as is already happening in Germany (maize) and SE Asia (oil palm). It will be important to stop perverse incentives for energy crop production on drained peatlands and to direct biomass production to already degraded peatland sites and combine it with rewetting.

Global energy politics also affect peatlands in an indirect way. Increasing demands for renewable energy lead to the destruction of mires through flooding for **hydropower**. In Canada 20,000 km² of water reservoirs have flooded 7,500 km² of wetlands and peatlands. In Finland, approximately 900 km² of peatland are covered by water reservoirs. In Russia, most fens of the Volga valley were destroyed when a cascade of reservoirs was built for hydroelectricity production. Large hydroelectric projects are currently being planned or developed in Iceland, Malaysia, Cameroon and Brazil, largely for aluminium production. Similar developments in other countries, e.g. in South Africa (Braamhoek mire!), Lesotho, and Uganda do not cover such large areas but may substantially affect mire biodiversity.

Rapid expanding facilities for **wind energy** generation threaten and destroy peatlands in oceanic and mountainous regions (Ireland, Scotland, Lewis, Northern Spain), and may create new environmental disasters (cf. recent landslides in Irish blanket bogs).

Vast areas of peatlands in Russia (W.-Siberia), Canada (Alberta), Alaska (Prudhoe Bay), and Nigeria (Niger delta) have been destroyed by expanding infrastructure for **oil and gas** exploration, exploitation, and transport or are threatened (cf. Arctic National Wildlife Refuge, USA). Road and pipeline constructions not only change the hydrology, but also cause GHG exchange misbalances over large areas. In Georgia (Transcaucasia) facilities to carry Caspian oil to the Black Sea are being constructed in the Ramsar protected Kolkheti National Park. The planned pipeline between Siberia and China will affect peatlands along 150 km. Also opencast **coal and lignite mining** leads to important losses of mires in several countries.

- To contradict the perverse incentives for cultivating energy crops on drained peatlands
- To prevent destruction of valuable peatland sites by energy infrastructure
- To focus peat extraction for energy on the least valuable peatlands
- To include the carbon (incl. methane) losses from peat in the GHG balances of “renewable” energies

To counteract unnecessary peatland destruction through energy politics, **tasks for international mire conservation** for the period 2012 – 2016 include:

- To counter the perverse argument of peat being a (slowly) renewable resource

3. Peatland conservation: focal themes and priorities

3.1. Peatland distribution

Globally approximately 4 million km² of peatlands (table 2.2) are found in 90 % of the countries of the World (fig. 2.3). The general inventory status is, however, (very) insufficient and largely outdated. For some regions very little is known, e.g. for large parts of Africa and South America and for the mountain areas of central Asia.

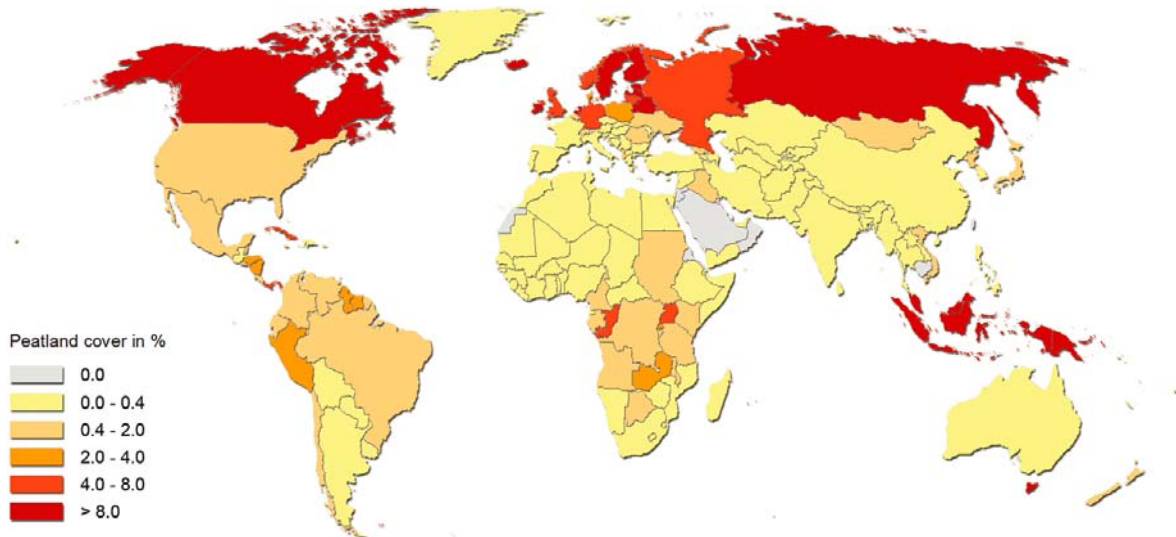


Fig. 2: Peatland cover per country (in % of national land area) (based on data from the IMCG Global Peatland Database, Joosten 2009) (map: Stephan Busse).

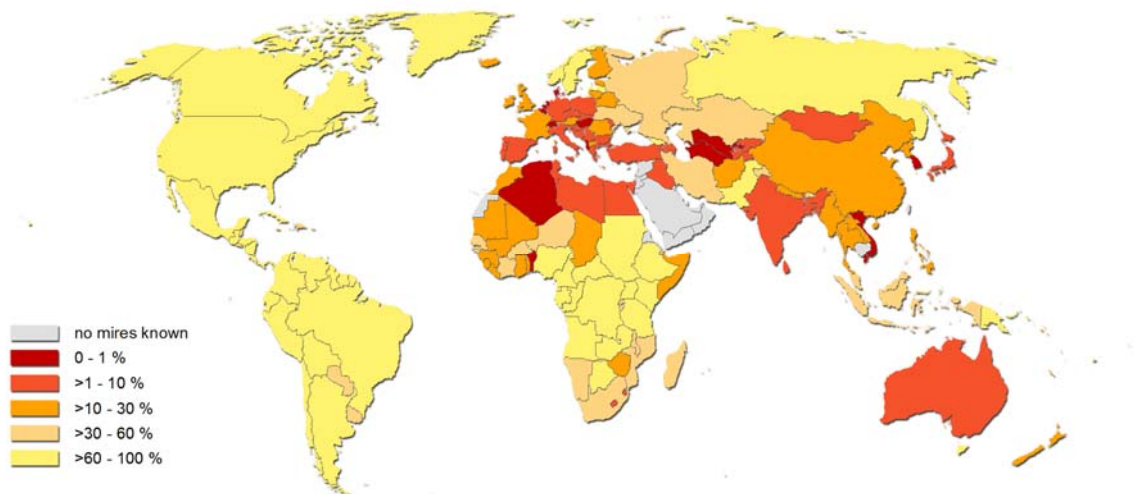


Fig. 3: Remaining mires as a proportion of their maximum distribution during the Holocene (based on data from the IMCG Global Peatland Database) (map: Stephan Busse).

3.2. Peatland types

Globally, peatlands are highly diverse, especially with respect to species and community composition. They have, however, much in common with respect to their eco-hydrological functioning. A globally accepted *mire typology* (and an overview where different types are occurring) is, however, still failing. This deficiency is largely due to the dual origin of mire research in both botany and geology and to the many land use options for which various

dedicated – but often incompatible – typologies were developed. The lack of a unified typology severely hampers the identification and effective conservation of mire ecosystem diversity and functionality. While thus many mire classification approaches exist, the International Mire Conservation Group has proposed a pragmatic (global) division into eleven main mire types (on a landscape scale), largely based on morphologic features (table 2).

Table 2: Main global zonal mire types (modified after IMCG Newsletter 2001/3).

Types	Definition	Principles of subdivision	Main zonal distribution
Bird top mire	mire originated by guano fertilization	location, inclination	(ant)arctic
Polygon mire	permafrost ice wedge mire	shape, size, arrangement	arctic, subarctic
Palsa mire	permafrost (ice) core mire	shape, size, arrangement, shape of complex	subarctic, subantarctic
Aapa mire	minerotrophic sloping patterned mire	shape, size, arrangement of surface elements, developmental stage	subarctic to nemoral
Blanket bog	rain fed mire, covering entire landscapes including steep slopes	highland, lowland	oceanic boreal and nemoral
Condensation bog	mire mainly fed by condensation water	inclination (vertical, sloping, horizontal)	no zonal distribution
Bog sensu stricto	mire, only fed by rain, elevated above the surroundings	shape, surface pattern, location	widespread: boreal to tropics
Open fen	minerotrophic mire, without forest cover	alkalinity, nutrient availability, water source and dynamics, shape, vegetation physiognomy	widespread: arctic to tropics
Forested fen	minerotrophic mire, with forest cover that contributes to peat formation		widespread: subarctic to tropics
Coastal mire	seawater influenced non forested mire	vegetation physiognomy	widespread: subarctic to subtropics
Mangrove mire	seawater influenced forested mire		tropics

The diversity of mire types is a paradigm example of ecosystem biodiversity that surpasses species biodiversity. Because of their strong climate dependence, climate change may lead to the local, regional or even global loss of mire types. Most sensitive are peatlands in extremely cold (palsa, polygon mires etc.) and oceanic climates (rainfed blanket and percolation bogs, highland mires). For their conservation under changing climatic conditions, it is essential to minimize further anthropogenic stress on these vulnerable peatlands.

3.3. Peatlands and greenhouse gases

Mires absorb carbon dioxide (CO₂) and store it for a very long time as peat. Therefore peatlands are ecosystems with much more organic Carbon per ha than other terrestrial ecosystem types (fig. 3). The CO₂ sequestration of the world's mires (approximately 1% of the CO₂-emissions from global fossil fuel consumption) gives them a modest but positive role in decreasing atmospheric greenhouse gas (GHG) concentrations and in cooling the climate. Because of the short lifetime of methane (CH₄), the

ongoing methane emissions from peatlands on the other hand do not increase atmospheric GHG concentrations and therefore do not contribute to climate change.

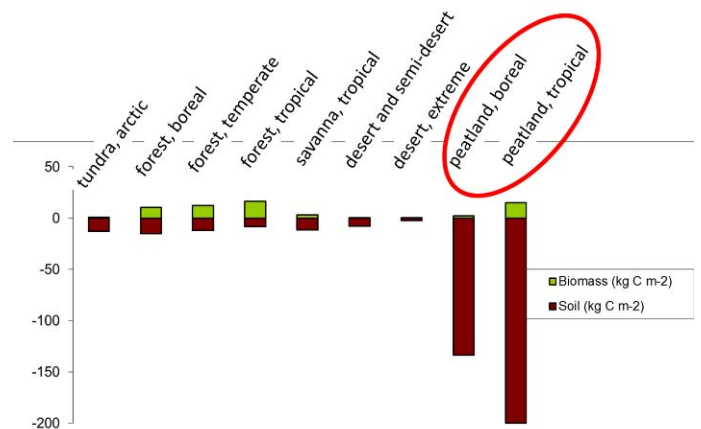


Fig. 3: Compared to other formations, peatlands contain disproportionately much carbon (largely in their soil).

Direct human activities such as drainage, land-clearing, and fires are turning peatlands from key carbon and nitrogen stores to important sources of CO₂ and nitrous oxide (N₂O). Until recently the contribution of degraded peatlands to the total global anthropogenic GHG emission budget was almost unnoticed in international climate policy. But this has recently improved, a.o. by including 'wetland drainage and rewetting' in the Kyoto Protocol and by not excluding peat soils under REDD+ (see Progress Report in this Newsletter).

In 2012, countries will have to decide whether to elect 'wetland drainage and rewetting' as a Kyoto Protocol accounting activity for the second commitment period 2013-2017. Election would allow countries that already have implemented peatland rewetting to capitalize these efforts. It would also stimulate the initiation of new and ambitious peatland rewetting programmes. The discussions in the last years have, however, shown that many countries are reluctant to do so and want to postpone including peatlands to the third commitment period (after 2020?).

With respect to greenhouse gases, **tasks for international mire conservation** for the period 2012 – 2016 include:

- To further promote the importance of peatland as carbon stores of global importance within UNFCCC and other relevant international conventions
- To identify degraded peatlands as substantial sources of GHG emissions and to reduce the incidence of peatland fires
- To stimulate systematic incorporation of peatlands in the national inventories of GHG sources and sinks under the UNFCCC
- To improve peatland carbon inventory data
- To develop and implement new financial mechanisms for peatland conservation for carbon storage and restoration of damaged peatlands

3.4. Peatland biodiversity and response to climate change

Species living in mires have to be adapted to the special and extreme site conditions that prevail. As a result, mires are in general poor in species as compared to mineral soils in the same biographic region. Many peatland species are, however, strongly specialised and not found in other habitats. IMCG maintains a large database on the distribution and ecology of mire plant species in the world. A similar database on mire fauna has to be developed.

The most important reason for loss of mire species diversity is the loss of habitats by direct human impact (especially drainage). Very little information is available on biodiversity losses and/or changes provoked by climate change that are aggravated by human induced habitat losses. The distribution of mires and mire types over the globe clearly reflects their dependence on climate. As mires concentrate in humid or cool regions, a changing climate can be expected to seriously affect their character, their carbon balance and their radiative forcing. On the other hand, peatlands also influence the regional and local climate through evapotranspiration and associated alteration of heat and moisture conditions. The palaeoecological record shows that several mire types and their communities in the boreal and temperate zones (e.g. raised bogs, percolation fens) are highly resilient against climate change. As their local climate is often considerably cooler than that of their immediate surroundings, they may play an important role in mitigating climate change by providing refugia and migration routes for species that are threatened by global climate change. This mechanism is illustrated by the occurrence of arctic "relict" species in mires in the temperate zone and by their function as wet biogeographical enclaves within regions with a (semi)arid climate.

Therefore, the diversity of mire types is a paradigm example of ecosystem biodiversity that surpasses species biodiversity. Because of their strong climate dependence, climate change may lead to the local, regional or even global loss of mire types. Most sensitive are peatlands in cold (palsa, polygon mires etc.) and oceanic climates (rain-fed blanket and percolation bogs, highland mires). For their conservation under changing climatic conditions, it is essential to minimize further anthropogenic stress on these vulnerable peatlands. Urgent attention has to be paid to the conservation of tropical peatlands. In tropical peatlands, drainage for subsistence agriculture and destructive harvesting of tropical peatland timbers have a large impact on biodiversity.

Several IMCG activities of the last years have contributed significantly to identifying global mire diversity, its functions and values.

Important in this respect is the 'IMCG Global Peatland Database' with information on distribution, extent, status and threat, and ecological characteristics of peatlands for all countries of the world, accessible under <http://www.imcg.net/pages/publications/imcg-materials.php>.

Since 2010, new inventories – often by or with substantial help of IMCG (members) - have contributed to a better knowledge on the distribution of peatlands in the United Kingdom, Ireland, Estonia, and Turkey.

With respect to biodiversity and climate change, **tasks for IMCG** for the period 2012 – 2016 include:

- The documentation and highlighting of the importance of peatlands as reservoirs of unique biodiversity, in particular in meetings of the Conventions on Biological Diversity, Ramsar, and other regional and local meetings
- The designation of additional Ramsar sites to include the full range of peatland types and biodiversity in the List of Wetlands of International Importance
- The designation of UNESCO World Heritage Sites to include the full range of peatland types and their natural and cultural biodiversity
- The regular updating of the IMCG Global Peatland Database and the development of a Global Red List of Endangered Mire Species and Mire Types
- The stimulation of peatland inventories in Africa, Eastern, and South eastern Europe, South America, and Central Asia
- The publishing of books on regional occurrence of mires and peatlands.
- The development and publication of a unified and integral overview of global mire types and their global distribution
- The identification of the effects of climate change on peatlands in the various peatland zones of the world
- The stimulation of the attention of the Arctic Council (incl. CAFF) to the effects of climate change on (sub)arctic peatlands
- The stimulation of the attention of the UN Convention to Combat Desertification to the effects of climate change on high mountain peatlands
- The elucidation of the role of pristine or restored peatland in regional meso-climate regulation
- The assessment of the role of the wet and cool peatlands as refugia and migration corridors/stepping stones in a drying and warming world

3.5. Peatland conservation

Still more than 80% of the worldwide mire area is largely undisturbed, i.e. a larger proportion than that from the forests of the tropics or of the nemoral zone. The volume of peat decreases slower than the stocks of oil. On the other side, peatlands are heavily threatened in the areas that are favourable for agriculture and in areas with a large population pressure hardly any undisturbed mires have survived. Positive is, that knowledge and awareness of peatlands is rapidly increasing. Only in the 1990s the Parties to the Ramsar Convention became aware that peatlands were severely underrepresented in the Ramsar system of protected wetlands. This awareness

led in 2002 to the Ramsar 'Guidelines for Global Action on Peatlands' and to important corrections in the designation of protected sites. The Convention on Biological Diversity firstly recognized in 2004 that peatlands constitute important habitats and stocks of carbon. The UN Framework Convention on Climate Change meeting in 2007 took place in Indonesia, which at that time was chastised by peat swamp fires, which kindled the attention to peatlands in the Climate Convention.

Peatlands have gained much international attention in the last years and play an increasingly important role in international politics, maybe not yet to the extent they deserve, but they are at least recognized. As a consequence many countries have developed and implemented ambitious peatland conservation and restoration measures. The importance of the Habitats-Directive and the Water Framework Directive in the European Union should in this respect not be underestimated.

Important is also the growing understanding of peatlands: that they are hydrologically connected internally and with their wider surroundings, that impacts may extend far away from the directly affected areas over large distances, and that changes are often irreversible so that peatlands can often only difficultly be restored.

Increasingly it is also recognized that demands in one country may have large effects on peatlands in other parts of the world and that consequently integrative solutions have to be found that do not cause problems elsewhere.

On the other side it can be expected that the pressure on peatlands in regions favourable for agriculture will increase immensely, because of inevitable growth of human population and the justified demand of the poor people for more welfare. By 2030, world population will have grown to 8 billion, increasing global demands for food by 50 %, water by 35-60 % and energy by 45 %. The demand will also grow, because cultivated land more and more will have to replace resources that until now were robbed from the dwindling wildernesses (wood, bushmeat) and the unsustainable bedrock (coal, oil, gas, minerals). Experiences as in Southeast Asia will repeat themselves in other parts of the world unless we are able to find and finance adequate alternatives.

We will only achieve protection of living peatlands in regions favourable for plant production if we manage to communicate their important ecosystem services: for regulating regional and global climate, for securing inhabitable and productive land, for safeguarding physical and mental sanity and for preserving moral value systems. But most importantly, we must find ways to use peatlands sustainably, to distract the pressure of expanding land use away from the continuously declining wildernesses and to focus it on re-claiming degraded lands to productivity.

If we want to protect mires, the degraded peatlands are the final frontier...

3.6. Peatlands and water

Peatlands and mires host 10% of the global fresh water resources, and are supporting important eco-services such as maintaining freshwater quality and hydrological integrity. Increased over exploitation of groundwater resources (for domestic and agricultural use), surface drainage and establishment of forestry (especially in marginal climates) threaten these abilities. The pollution of peatlands by oil spillages, sewage and industrial waste as well as agricultural pollution (fertilizers, nutrients from animal and crop waste).

Future lack of water will sharpen the conflicts between agriculture and mire conservation, especially in Africa, the Near East, Central- and Middle Asia and the Far-East, but also in West- and Central Europe and Central America. In this respect the importance of pristine and rewetted peatlands for water retention and adaption to climate change will increase.

With respect to water, **tasks for international mire conservation** for the period 2012 – 2016 include:

- To prevent further degradation of groundwater dependant peatlands by the overexploitation of groundwater sources
- To prevent further expansion of forestry on primary aquifers supporting peatland existence
- To prevent pollution of peatlands and related water sources

3.7. Peatlands and poverty

In developing countries, poverty drives people into over-exploitation of peatlands, which in turn increases poverty. Maintaining and restoring peatlands will contribute directly to poverty reduction. In addition, developing integrated approaches to peatland wise use and poverty reduction contributes directly to peatland conservation. The occurrence of peatlands often coincides with rural poverty, as a consequence of peatlands being some of the last remaining wilderness and natural resource areas. The linkage between poverty and peatlands is apparent in SE Asia, especially in the mega rice project area in central Kalimantan, but also in Africa and the Andes. Local communities located far from markets and trapped in systems of poverty often largely depend on the productivity of natural mires or on their conversion to subsistence agriculture. Peatland conservation in these areas implies reduction of poverty.

Peatlands play significant hydrological roles as water sources, buffers, stores and purifiers. Population growth and climate change will put an increasing pressure on water resources. This will lead to conflicting situations between human livelihood and peatland conservation (cf. Maputaland, S.-Africa) and increasing desertification, but also enable new

partnerships where reliable and sustainable water resources are provided by mires.

With respect to poverty reduction, **tasks international mire conservation** for the period 2012 – 2015 include:

- To initiate studies into the socio-economic drivers that push poor rural communities to dependency/exploitation of peatlands
- To propagate financial mechanisms that decouple poverty and the destruction of peatlands (e.g. Pro-Poor Payments for Environmental Services, PES)
- To create win-win options for poverty reduction and biodiversity conservation in poverty-trapped peatland areas similar to agri-environmental schemes in Europe and the USA

3.8. Peatland restoration/rehabilitation

In the last decades East-Central Europe has experienced a massive abandonment of agricultural peatlands through a combination of peat soil degradation, increased costs of drainage through subsidence, and changed economic conditions. This abandonment has resulted in: (i) a continuation and increase of environmental problems (emissions of CO₂ to the atmosphere and nitrates to the water, fire), (ii) a loss of economic carriers and rural employment and (iii) a loss of biodiversity, in particular in areas with low-intensive farming. This problem complex concerns millions of ha in East Germany, Poland, the Baltic States, Czech Republic, Slovakia, Belarus, Ukraine, and Russia. Abandonment furthermore leads to problems of social cohesion and regional economies.

In central Europe, vast areas of degraded agricultural peatlands are currently being rewetted because maintenance of their drainage and agricultural use are no longer profitable. New functions established for these restored wetlands include carbon storage, flood control, water purification and the re-establishment of biodiversity and wilderness conditions to stimulate eco-tourism (good examples in eastern Germany, Poland and Belarus). Promising is the development of new wet production functions (reed, alder wood, biomass fuel) to create new and sustainable economic carriers for rural livelihoods.

Programmes for peatland planners and managers have been performed in central and eastern Europe (UK Darwin Initiative, Birdlife Belarus and Wetlands International), in SE Asia, Russia and China (UNEP-GEF peatlands, biodiversity and climate change project). The latter project also stimulated the preparation of a “global restoration manual” to provide practical guidance and information exchange for peatland restoration worldwide. The IMCG field symposia specifically aim at exchange of management and restoration experience between participants. In South Africa the “working for

wetlands” programme pays much attention to training for peatland restoration.

Recently a regional knowledge network on rehabilitation of Baltic wetland has been established, aiming at combining wetland and peatland rewetting with water purification and sustainable exploitation of biomass. In the Netherlands, Switzerland, Poland and South-Africa regional knowledge networks exist, usually financed by government agencies that assist in the planning and execution of restoration/rehabilitation projects. In such projects scientists, managers and private companies work together on a regional or national scale. Through activities of IMCG members the cooperation between the regional branches of the Society of Ecological Restoration (SER) is steadily increasing.

With respect to rehabilitation and restoration of damaged peatlands, **tasks for international mire conservation** for the period 2012 – 2016 include:

- To promote peatland restoration by combining environmental objectives (reducing peat oxidation, increasing biodiversity) with production and sustainable exploitation of biomass (paludiculture)
- To stimulate wet forestry on rewetted degraded peatlands
- To stimulate fresh Sphagnum biomass production for horticulture in abandoned peatlands
- To combine poverty alleviation projects, training and education as well as public awareness with restoration projects in poorer communities
- To establish Regional Knowledge Networks that assist in peatland management and in the planning and execution of peatland rehabilitation projects
- To publish manuals and books on successful rehabilitation of damaged peatlands

3.9. Wise use of peatlands

The paradigm of “wise use” requires peatland users to take environmental and social aspects into account, whereas conservationists need to internalise economic and social issues.

Some progress in putting Wise Use into practice has been made by parts of the peat industry, e.g. by focussing peat extraction on less valuable peatlands, by restoration of exploited peatlands, and less so, by financial support to the science and conservation community.

Wise Use is, however, still far from internalised and the concept is often corrupted to mean that the use of peatlands – for whatever purpose, in whatever way – is always “wise”.

With respect to wise use, **tasks for international mire conservation** for the period 2012 – 2016 include:

- To further develop and disseminate the IMCG/IPS Wise Use approach especially with and among the peat(land) and energy sector
- To develop and implement more concrete guidelines for local and community-based peatland wise use for different regions and sectors
- To integrate the wise use approach into national legislation
- To identify and stimulate synergies between international conventions (e.g. Biodiversity-CBD, Ramsar, Climate-UNFCCC, Desertification-UNCCD)
- To continue the discussion on the wise use of peat that must include both origin and application of peat

4. Capacity, awareness and legislation

4.1. Research, knowledge networks and institutional capacity

Knowledge and understanding are prime issues in the Wise Use approach. Its implementation requires institutional capacity that has to be created and enhanced by information and training.

The IMCG network, with members from research, administration and management, offers ideal opportunities for exchange of experience and expertise. Important roles in this respect are played by the IMCG website and newsletter and by the open access scientific journal ‘Mires and Peat’.

Typical for the IMCG network are its personal bonds brought about by field symposia and joint projects. In southern Africa a regional network of peatland experts was established by IMCG members, including experts from South Africa, Mozambique, Zimbabwe, Botswana and Namibia. A similar network has been initiated in Patagonia on the occasion of the IMCG 2005 Field Symposium in Tierra del Fuego and has been the base for organising the IMCG Andes Field symposium in 2012.

However, cooperation between members, within the framework of their own professional duties, can be strengthened. The reliance on a few active volunteers and the lack of financial resources, partly due to refraining from paid membership, could be regarded as a weak point of the IMCG. A strong point is that IMCG members usually combine activities within their professional duties. The IMCG action plan should focus more on these strong points and motivate to strengthen cooperation between members in concrete projects and activities. During the last ten years such activities are occurring on a more regular basis, but have not yet been incorporated in the IMCG action plans.

With respect to research, knowledge networks, and institutional capacity, **tasks for international mire conservation** for the period 2012 – 2016 include:

- The international exchange of information and expertise, including the continuation of the IMCG website, Newsletter, Field courses, Symposia and Workshops, and the further development of the “Mires and Peat” journal
- The stimulation of (multi-disciplinary) research and research networks to improve knowledge on the role of peatlands in mitigating the impacts of global change.
- The improved understanding of the functions of the world's peatlands and the economic values of ecosystem services of peatlands
- The expansion of the knowledge network within IMCG

4.2. Education and public awareness

The regional and global awareness on peatlands and peatland issues has substantially increased in recent years as manifested in the attention in global media. Global, regional, national and local networks and activities have significantly contributed to enhanced awareness of policy and decision makers. The number of scientific and popular publications on peatlands has grown considerably.

Websites, including that of IMCG (www.imcg.net) and a large variety of excellent national and local websites, e.g. in Russia, France, Ireland, Canada and the UK, have increased access to information on peatlands worldwide.

Peatlands are increasingly incorporated as an environmental theme in educational programmes. Teaching, learning and training resources on peatlands have been developed and promoted especially in areas where peatlands form a significant component of the landscape and culture.

In order to ensure that the importance of peatlands as a global wetland biodiversity resource is fully understood, it is important to further develop and implement environmental education, training and public awareness programmes focusing on peatlands.

With respect to education and awareness, **tasks for IMCG** for the period 2012 – 2016 include:

- The advancement of the awareness of the benefits of peatlands at all levels of decision making
- The development, promotion, and dissemination of teaching, learning and training resources on peatlands
- The stimulation of incorporating mire and peatland issues in all forms of environmental education
- The training of planners and managers with respect to peatland functions, values, and management
- The support of individual members in developing and disseminating information and background knowledge on mires to a wide range of public – from children to ministers

4.3. Policy and legislation

The IMCG tries to participate in the political decision making processes on peatlands and many members are official representatives of their countries in various international conventions such as Ramsar, Biodiversity-CBD, Climate-UNFCCC, Desertification-UNCCCD etc). Our work in international bodies and conventions is aimed at reviewing laws and regulations to promote the conservation and wise use of mires and peatlands. The IMCG congresses seek to identify strongholds and weaknesses in national policies. The European mires book project reviews the national policies with respect to peatlands in all European countries.

With respect to policy and legislation, **tasks for IMCG** for the period 2012 – 2016 include:

- The stimulation of peatland conservation, wise use and management issues in the discussions and resolutions of the Ramsar Convention, the CBD, the UNFCCC, and the UNCCCD including stimulation of joint action plans with respect to peatlands
- The continuation and expansion of the Ramsar Coordinating Committee for Global Action on Peatlands to a multi-conventional coordination body
- The review whether appropriate legal and institutional frameworks for effective conservation and wise use of peatlands are in place worldwide, e.g. water management and land use planning mechanisms and legislation
- The study whether the particular importance and requirements of peatlands are fully incorporated into national policies, laws, planning instruments, and incentive programmes.
- The stimulation of reviews of national networks of peatland protected areas. In case of an incomplete network, the number of peatland protected areas should be increased
- The conservation of nationally, regionally and globally important and representative peatland types through the expansion of the global network of Ramsar and UNESCO sites

5. Priorities for the IMCG:

5.1. Worldwide

- The international exchange of information and expertise, including the continuation of the IMCG website, Newsletter, Field courses, Symposia and Workshops, and the further development of the “Mires and Peat” journal
- The expansion of the knowledge network within the IMCG
- The establishment of Regional Knowledge Networks that assist in management of peatlands and planning and execution of peatland rehabilitation projects
- The designation of additional Ramsar sites and UNESCO World Heritage Sites to include the full range of peatland types

- The identification of degraded peatlands as substantial sources of GHG emissions and the reduction of peatland fires
- The development and implementation of new financial mechanisms for peatland conservation for carbon storage and restoration of damaged peatlands
- The further development and dissemination of the IMCG/IPS Wise Use approach especially with and among the peat(land) and energy sector
- The combat against perverse incentives for cultivating energy crops on drained peatlands
- The prevention of peat extraction in pristine mires of destruction of valuable peatland sites by energy infrastructure
- The stimulation of the development and use of sustainable alternatives for peat use in professional and hobby application in horticulture
- The stimulation of wet forestry on rewetted degraded peatlands
- The development and implementation of agricultural production techniques that maintain or restore the environmental functions of undrained peatlands and that play a supporting role in regional economy

5.2. Europe, Australia, USA and Canada

- The integration of the wise use approach into national legislation
- The continuation of the discussion on the wise use of peat including both origin and application of peat
- The creation of Regional Centres of Expertise in the wise use and management of peatlands to facilitate training and the transfer of knowledge
- The training of planners and managers with respect to peatland functions, values, and management
- The development and implementation of new financial mechanisms for peatland conservation for carbon storage and restoration of damaged peatlands

- The prevention of using high-quality peats for low-quality applications, such as burning for energy production and private gardening purposes
- The stimulation of the development and use of sustainable alternatives for peat, e.g. from bio-/green waste and sewage sludge
- The stimulation of the development of high-quality alternatives for peat in professional horticulture, such as fresh Sphagnum biomass production in abandoned peatlands

5.3. Africa, Asia, South America

- The prevention of peat extraction in pristine mires and valuable peatlands
- The prevention of further reclamation and over-exploitation of remaining tropical peat swamp forests
- The re-establishment of adequate management techniques for highly biodiverse peatlands in low-intensity use
- The stimulation of peatland inventories and improvement of peatland carbon inventory data
- The development and implementation of new financial mechanisms for peatland conservation for carbon storage and restoration of damaged peatlands
- The propagation of financial mechanisms to decouple poverty and the destruction of peatlands (e.g. Pro-Poor Payments for Environmental Services, PES)
- The creation of win-win options for poverty reduction and biodiversity conservation in poverty-trapped peatland areas similar to agri-environmental schemes in Europe and the USA
- The promotion of peatland restoration by combining environmental objectives (reducing peat oxidation, increasing biodiversity) with production and sustainable exploitation of biomass

Towards the Impact Factor target for Mires and Peat

by Olivia Bragg

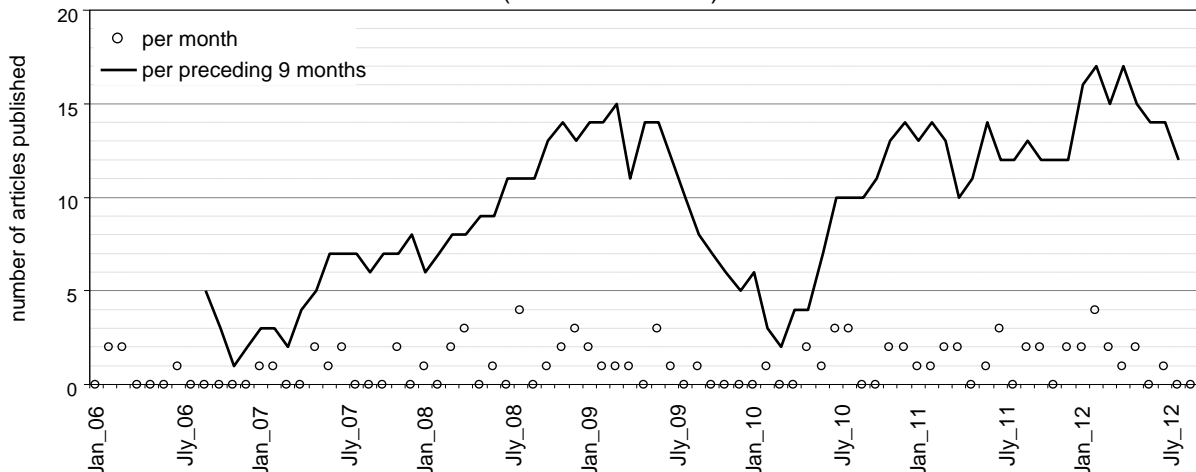
Mires and Peat is the open-access academic journal of IMCG and the International Peat Society (IPS). It arises from an agreement between the two organisations that contains the clause “The intention is to achieve a scientific classification in the ISI Thomson Master Journal List”, meaning it should ultimately have an Impact Factor (IF). One reason for pursuing this is that journals with IFs are more attractive to those authors whose research performance is judged – however incredibly – from the IF levels of the journals in which they publish. IFs are calculated each year for a set of journals selected for indexing by the company Thomson Reuters (TR). In a given year, the IF of a journal is the average number of citations received per paper published in that journal during the preceding two years. For example, if a journal has an IF of 3 in 2012 then, on average, each article it published in 2010 and 2011 was cited 3 times by the indexed journals during 2012 (self-citations are included in the calculation). Thus, a new journal that is indexed from the first published issue will receive an IF in its third year.

The first manuscript for *Mires and Peat* arrived on 18 August 2004. It was published when the journal eventually appeared online on 01 January 2006, although the official launch was delayed until IMCG and IPS met in Espoo (Finland) on 28 July that year. So the eighth anniversary of the first manuscript submission was last month, and the journal is now in its seventh year. All articles are peer reviewed and edited to high standards, the average processing time per manuscript is currently 235 days, and we have published some articles within 50 days of submission. At the last count *Mires and Peat* had a worldwide readership of around 7,000 website visitors per month, and the most popular articles were downloaded five times per day during 2011. So why does it still not have an IF?

To get an IF, the journal must first qualify to be indexed in TR’s *Web of Science* through a rigorous evaluation of timeliness, publishing standards, content, international diversity of authorship and various citation statistics. In 2008/9, *Mires and Peat* was accepted at first recommendation by other journal indexing services that are relevant to some of our authors; namely EBSCO, CABI (*Web of Knowledge*), CSA Proquest and DOAJ (*Directory of Open Access Journals*). It was submitted for evaluation by TR in 2009/10 and the first feedback was received last week. It turns out that, as yet, the journal is still too small to be considered for *Web of Science*. Before the TR evaluation can proceed, we must be consistently publishing a “threshold number of at least 15 articles in a nine months period”.

To give an idea of how close we are to qualifying for the TR evaluation process, the Figure shows the number of articles published each month since the journal began and, from September in the first year, the total number published during each month and the preceding eight (i.e. a moving nine-month total). Before January 2012 we had touched the ‘15 articles in nine months’ threshold only once, in March 2009. This year we were at or above it for five consecutive months (January to May), but fell back below it in June because no more articles were available at that time. We subsequently published one article in September and two more are imminent. After that we shall have only two ‘on the books’, and these may or may not reach the necessary standard before the end of the year. If they do, we could publish 15 articles in the twelve-month period 01 January to 31 December 2012. So, it becomes clear that we must increase our annual publication rate by at least one-third before the procedure that could result in an IF can begin in earnest.

Mires and Peat (ISSN 1819-754X) Publication Rate



The format of *Mires and Peat* allows us to adopt a very simple publishing model. We open a 'standard' volume on 01 January every year, each article is published as it becomes ready, and the volume closes on 31 December. In the journal's seven years, we have so far published 49 articles resulting from manuscripts submitted prospectively to the Editor. Author interest is fairly steady, at a level that enables us to publish a standard volume of around seven articles each year (six in Vol. 1; nine in Vol. 2; eight in Vol. 3; five in Vol. 6; and seven each in Vols. 5, 8 and 10). We have also published 29 refereed articles in 'special' volumes (Vols. 4, 7 and 9) which arose from conferences and other group initiatives, and five articles in standard volumes which came from conferences that did not yield sufficient material to make separate special volumes. As these solicited submissions account for 37 % of our published articles to date, it seems worth recapping on their sources:

- *Peat and Peatlands 2007* conference, Lamoura, France, 08–11 October 2007 (4 articles) (Editor approached meeting organisers through IMCG);
- *Organic Soils and Carbon Sink* session, EGU, Vienna, 13–18 April 2008 (1 article) (an Editorial Board member was involved in organising the session; unfortunately the focus and quality of articles offered changed after the conference);
- *Wind Farms on Peatland*, IMCG Symposium, Spain, 27–30 April 2008 (10 articles) (*Mires and Peat* Editor was one of the symposium organisers and was asked to manage publication of the Proceedings);
- *Peatland Archives of Holocene Climate Variability* symposium, joint sponsors, Estonia, May 2009 (13 articles) (external to IMCG and IPS; *Mires and Peat* Editor was approached one year later by a group assembled during the symposium specifically to produce a 'protocols volume'); and
- Hula Valley peatland, Israel: follow-up research visit by Assistant Editor Richard Payne in 2010 (6 articles so far).

It seems that more manuscript-generating ideas like these will be needed to bring the publication rate up to a level that would make continuing the quest for an IF realistic. And of course, there are knock-on implications for our editorial and administrative capacities, as we provide a free journal only by calling heavily on 'free' time donated by skilled volunteers.

It has already been suggested (*Mires and Peat* Editor's Report 2011) that obvious sources of additional material for 2012 would be the IPS Stockholm Congress and the IMCG field symposium/seminar. The publication of peer-reviewed articles arising from these meetings could not only support the growth of the journal, but also benefit the profiles of both sponsor organisations. IPS has appointed Sakari Sarkkola and Ing-Marie Gren as Guest Editors for a special volume of *Mires and Peat* based on their selection of presentations from the IPS Congress, and the first manuscripts have been received.

I now invite the IMCG seminar in Bogota to consider whether they wish to publish their proceedings in a similar way.

To make a dedicated proceedings volume we need at least six articles reporting work that has not already been published elsewhere. It would be helpful to receive a list of promised manuscripts, with the authors' offered submission dates, from the seminar. Even better, IMCG might consider appointing one or more Guest Editors who would take primary responsibility for liaising with authors during manuscript preparation. But if preferred, individual authors may email their offers and manuscripts directly to me: o.m.bragg@dundee.ac.uk.

If you would like to see the journal, know who is on our Editorial Board, or find instructions for preparing your manuscript for submission, navigate to <http://www.mires-and-peat.net/>.

Olivia Bragg
12 September 2012

International call for peatland action

Outcomes of the workshop 'Peatland restoration: a nature based solution to climate change' at the IUCN World Conservation Congress, Jeju, South Korea on the 7th September 2012



At the IUCN World Conservation Congress in South Korea, delegates have been discussing the important role of peatlands in helping tackle climate change. Calls were made for urgent action to conserve and

restore peatlands with the IUCN taking a key role in helping countries to meet this challenge.

Clifton Bain Director of the IUCN UK Peatland Programme and Jonathan Hughes Deputy Chair attended the global event to highlight the findings of the recent UK Commission of Inquiry on Peatlands.

At a workshop on peatlands, participants learned of the UK's successful peatland conservation and restoration projects along with examples from China, Russia, Germany and Australia.

With over 6% of global CO₂ emissions coming from damaged peatlands this restoration work can make a significant contribution to tackling climate change. The event concluded with a series of recommendations for action. High on the list of priorities were:

- For the IUCN to provide a focus for peatland action through its work on ecosystem management.
- To work with the business and private sector to secure funding that reflects the huge benefits of peatlands for biodiversity, water and carbon.
- Support international effort to share good practice in managing peatlands

- International sharing of science to quantify the carbon and other benefits of peatland conservation and restoration.

Clifton Bain said – “through our UK work on peatlands we have some excellent peatland restoration projects involving strong partnerships which we now know are clearly relevant across the world. The respective governments in all four UK countries have recently indicated their support for improving the condition of peatlands with a forthcoming joint statement to include intentions and highlight actions. This could serve as an example for other countries to follow.”

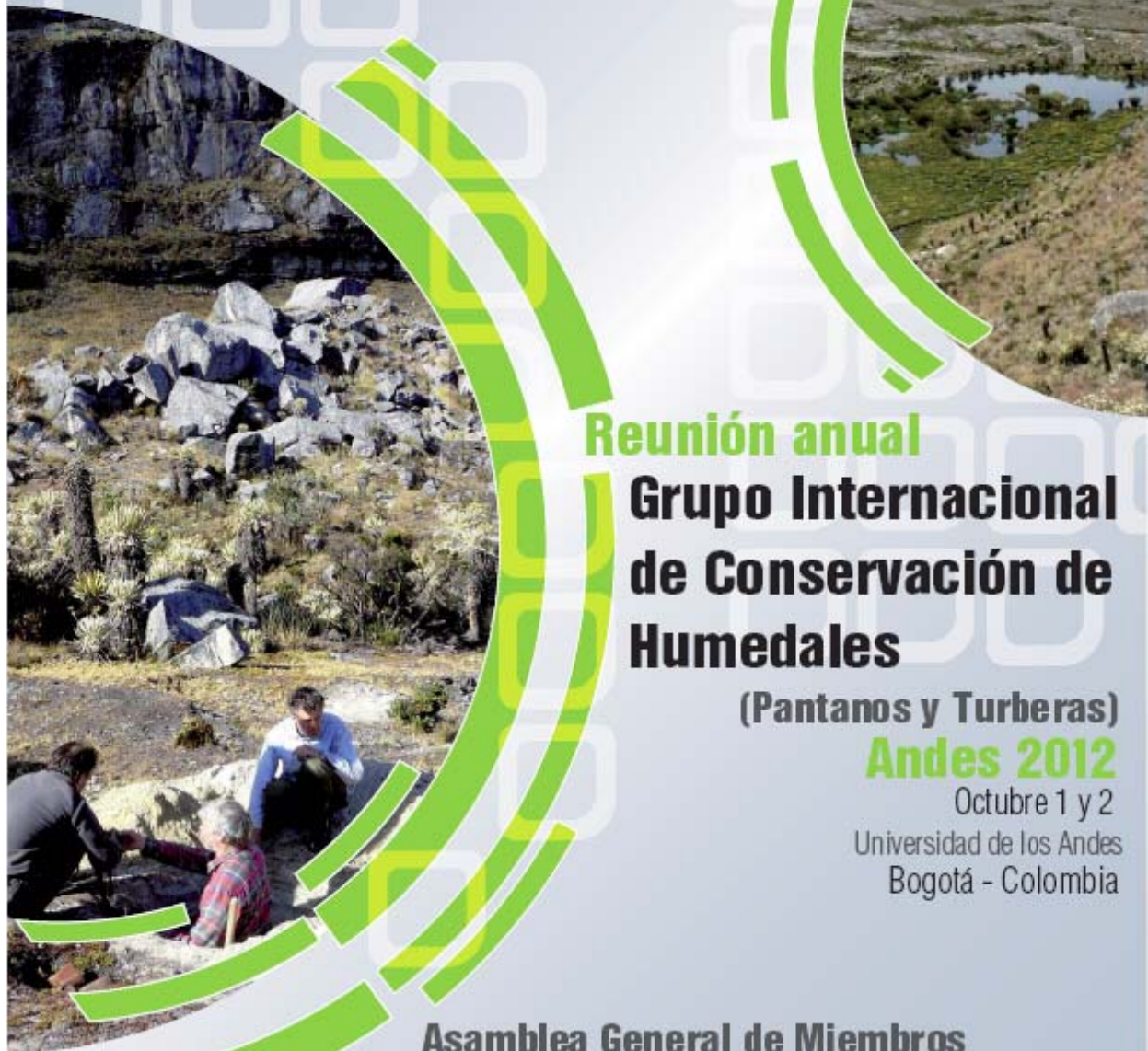
Jonathan Hughes said – “the IUCN with its special mix of government and civil society members is ideally placed to help take forward action for peatlands as a prime example of nature providing nature-based solutions to climate change. The strong feeling among IUCN members at Congress was an important turning point for peatlands which should now be seen as a valuable asset to society. Without action to conserve and restore these precious wetlands we are creating costly problems for the future. As we heard from world leaders at the nature and climate debate at Congress, IUCN knows the answers, we now need to be ambitious in promoting these across the globe and share good practice”.

“Peatland conservation is a prime example of a nature-based solution to climate change but we urgently need to switch from aspiration to action to secure the benefits that peatlands provide” Julia Marton Lefevre, Director General, IUCN

REGISTER

Please fill out the IMCG membership registration form.

Surf to <http://www.imcg.net> or contact the secretariat.



Reunión anual
Grupo Internacional
de Conservación de
Humedales

(Pantanos y Turberas)

Andes 2012

Octubre 1 y 2

Universidad de los Andes
Bogotá - Colombia

Asamblea General de Miembros

Octubre 1

9:00–17:00, Auditorio ML-C

Edificio Mario Laserna - Calle 19 No. 1-96E

Simposio (Abierto al público)

Octubre 2

9:00–12:00, 13:00–17:00, Auditorio SD-1003

Edificio Julio Mario Santo Domingo - Calle 21 No. 1-20

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UPCOMING EVENTS

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

IMCG Field Symposium and Conference

Andes, 21 September – 3 October 2012

See elsewhere in this Newsletter and www.imcg.net

Mires and peat as a raw material - GeoHanover 2012

1 - 3 October 2012, Hannover, Germany

More info: www.dgmtev.de

Renaturierung der Heiden und Moore im Hohen Venn

4 - 6 October 2012, Eupen, Belgium

<http://biodiversite.wallonie.be/fr/kolloquium.html?IDC=3883>

International Conference on fresh water governance for sustainable development

5 - 7 November 2012, Drakensberg, South Africa

For more information visit:

www.wrc.org.za/freshwater/Pages/default.aspx

Reed as a Renewable Resource (RRR)

14-16 February 2013, Greifswald, Germany

International Conference on the Utilization of Wetland Plants such as Common Reed, Sedges, Reed Canary Grass, and Cattail.

For more information visit: www.rrr2013.de/

ISHS-IPS “International Symposium on Growing Media and Soilless Cultivation”

17-21 June 2013, Delft, the Netherlands

More info: www.grosci2013.nl

