



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

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

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

### Editorial

The last IMCG Newsletter of 2003. Not with everything we wanted to include, but time is always running short, also here. We thought it wiser to provide you with a fresh Newsletter just before Christmas and to spend the cosy days to browse through the whole pile of books that still awaits reviewing. You'll see more of it next year. Again we took the liberty to edit most of the contributions we received severely.

We'll do our best to publish the next Newsletter at the end of March 2004. Please send all your contributions, news, publications, etc. to us well before March 22, and with your help we will again prepare an interesting Newsletter.

Please do not forget, there are some important deadlines for the 14th IMCG Congress in South Africa coming up. Abstracts need to be submitted by **15 January 2004**, and the deadline for early registration (reduced fees) is **29 February 2004**. See Newsletter 2003/3 or our homepage for detailed information.

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

We wish you some very nice Christmas days and all the best in 2004.

John Couwenberg & Hans Joosten, The IMCG Secretariat  
Botanical Institute, Grimmerstr. 88, D-17487 Greifswald (Germany)  
fax: +49 3834 864114; e-mail: [joosten@uni-greifswald.de](mailto:joosten@uni-greifswald.de)

### Contents:

Editorial.....	1
Word of our Chairman.....	2
Meeting of the IMCG-EC.....	3
Meeting IMCG / IPS <i>November 2, 2003 Amsterdam, Netherlands</i> .....	6
The Ramsar CoCo-GAP.....	7
IMCG and IPS on mission in Brussels.....	9
IMCG Resolutions.....	10
UNFCCC Conference and Peatland Side Event.....	12
The Future of Peatlands.....	14
Perspectives of global peatland use and conservation.....	14
A high altitude mire in the Qomolangma National Nature Preserve, Tibet Autonomous Region.....	20
Mires and Climate Change: Salinity, Siberia, and The Gulf Stream.....	21
Lake Sentarum National Park.....	23
Controversial expressway threatens Biebrza Mire (Poland).....	24
Request for Proposals Society of Wetland Scientists' Ramsar Support Grant.....	25
Regional News.....	26
New and recent Journals/Newsletters/Books/Reports.....	28
Used Stamps help Save the Bogs.....	30
IMCG Main Board.....	31
UPCOMING EVENTS.....	32

## Word of our Chairman



There are only a few days left until Christmas and new-year, and every year one somehow tries to solve the dilemma between the inevitable “end-of-the-year” chaos and stress in the office on the one side and the legitimate family expectations and commitments on the other side. At such a moment an email from the IMCG Secretariat arrives reminding you of a Newsletter contribution. Well, I indeed promised to write a column for this issue. It has been a long time, and it is

always easier to make promises when the deadline is somewhere far in the future.

Anyhow, I found the time to sum-up some thoughts. Traditionally the end of the year is the time for reviewing the work that has been done and for setting out new plans and intentions. So let's do that.

The year 2003 was quite challenging and exciting for IMCG. I would literally call this period the “Post-Valencia-Year.” After celebrating the success of the GGAP resolution (Ramsar VIII/17) in Valencia in November last year, the main efforts and activities focussed on the implementation of this document henceforth. The GPI platform allowed several implementation projects in various corners of the world, either directly led by IMCG or with significant IMCG participation. According to our IMCG action plan, numerous activities concentrated in the focal area of the African continent, where the next IMCG Congress will take place in the autumn of 2004. Also the active co-operation with the International Peat Society in those fields where IMCG and IPS met their joint interests developed quite successfully. IMCG increasingly became a professional global player. This enabled us to formulate and present our demands and ideas on numerous important meetings and conferences. These efforts culminated recently in the Netherlands with the “Mire Meeting Marathon” (see elsewhere in this issue) and the presentation of the Wise Use of Mires and Peatlands book to the European Commission. The membership rose more than ten percent and there are first tendencies to establish regional groups.

Overall, we can be satisfied with the work that has been done in the last twelve months and we can confidently look forward to meet our next challenges.

Nevertheless, we should also exercise a healthy self-criticism, as there is always a possibility for improvement. I would like to mention some points, which – in my opinion – are worthy of our attention.

The first one concerns the participation of our IMCG members in IMCG activities. Without doubt a lot of work has been done in the past but the main load lies on the shoulders of just very few people. It would be great to achieve a situation where more people (members) are actively involved in the countless IMCG activities, to take work of the Executive Committee's shoulders. On the other side, the EC should learn to hand over some actions and to

look for mechanisms on how to activate the Main Board and membership for a more efficient co-operation. One important side-effect would then be the recruitment of potential Main Board members. There are only nine months until the next General Assembly and this issue becomes increasingly relevant. I mean, it would be a great improvement to be able to have a really competitive election of the MB among a large group of candidates instead of spending time on recruiting and advertising to fill the vacancies.

I sincerely hope I am wrong, but since only a very faint response was received after the first call for member-wide data entry for the Expertise Database, I am often asking myself, how active are our members actually? How many of them are happy with just being regularly informed via the Newsletter and the IMCG homepage, but are reluctant to participate actively in IMCG-related action? At the beginning of the coming year I will send out a second call, with better chosen timing and more realistic deadlines and I hope to see that the failing response on the last call was only caused by technical factors.

The next and directly related issue to be accentuated once more is the participation of members in the development of the legal status of our Group. I vividly remember the long and hot discussions during the last General Assembly in France concerning the current Constitution, concerning the correctness of certain Articles and rules. Indeed, different opinions and ideas especially concerning the formal regulations with respect to the Main Board and the Executive Committee as well as regarding the election procedure are worth consideration and in-depth discussion. We have used the platform of the Newsletter several times already to call for such discussion, primarily addressing those Members who are not really satisfied with the current situation. We asked for contributions that would initialise such discussion. Unfortunately, nothing has happened yet. I am taking the opportunity now again to appeal to everybody who feels unhappy with the current status of IMCG to start a target-oriented dispute using the IMCG media (Newsletter and homepage) now. It will be too late if you raise your critical comments only in Perth in September during the next General Assembly meeting. We seriously want to examine every idea and comment but we also need sufficient time to do this if we want the assembly to take an informed decision that takes your critique into account. So please, go ahead.

Dear IMCG folks, thank you all for your interest, support, and co-operation to date. Especially I would like to express my highest gratitude to those IMCG friends who actively contributed to the everyday business of our Group or to the numerous actions and activities carried out during the last twelve months. Without their extraordinary efforts and enthusiasm IMCG would not have been as successful as it has been.

Let's close as usual – by wishing you a harmonious and peaceful Christmas time and a healthy and successful year 2004.

Your Jan

## Meeting of the IMCG-EC

31 October – 1 November, Egmond, The Netherlands

The IMCG EC (Jan Sliva, Hans Joosten, Tatiana Minaeva; not present: Philippe Julve and Stuart Brooks) and interested IMCG members (Piet-Loius Grundling, Michael Trepel, Andrej Sirin) met recently in Egmond in the Netherlands.

### *Internal organisation*

Jan reported that per 30.10.2003 IMCG has 296 members. Several applications are still in the pipeline, including many new members from Southern Africa. Per 31.12.2002 we had 265 members. This means that the aim of an annual increase of 10 % of the membership has already been reached. Reactions on the IMCG expertise database have been meagre: only 19 members reacted. This might be due to the announcement not being very explicit (it was included in the general announcement of a new newsletter) and due to the deadline being very sharp, which may have deterred people who noticed it too late. Jan will send out a new request per separate mail with a new deadline.

The website has recently been updated with new main entries and Michael Trepel is doing a magnificent job. The EC decided to put a disclaimer on the entrance page that IMCG is not responsible for the information provided via external links.

It was noted that the Newsletter increasingly contains papers with a more “scientific” character that go beyond a news item. This gives the Newsletter a solid expert character, but is also a little bit confusing when short notes are intermixed with longer articles. The editors should try to structure the overall layout of the Newsletter better. To provide on-line readability we shall present the Newsletters again also in HTML format. The distribution of the paper copies of the IMCG Newsletter proceeds smoothly thanks to great efforts of Margrit von Euw. To reduce the number of the paper copies, Jan will contact all members receiving paper copies and ask them whether they can and wish to change to electronic distribution.

With respect to the Wise Use book, IPS has provided us with a financial overview of the cost and profit of the book until now. The calculation of some cost aspects is curious. These unclear points have to be sorted out between the secretariats. Furthermore IPS has sold the bulk of the books by advance order (before November 2002) to their members for the price of only € 10, i.e. almost for cost price. IMCG has got 200 copies free of charge. These have largely been distributed in countries with currency problems. All these things have never been decided between the organisations in advance, because all decisions had to be taken in a hurry last year to be in time for the Ramsar CoP meeting in Valencia. As the developments cannot be turned back, we have to accept the situation as it is now.

At present, still some 475 books are unsold in store at the IPS office. IMCG will propose IPS to send a book to at least one central library in every country so that the book is available for everybody.

In the beginning of 2004, the Secretariat will approach the responsible Champions for tasks in the IMCG Action Plan to report on the situation in order to prepare the IMCG Annual report 2003.

Jan will address the issue of possible amendments to the constitution in the Newsletter.

Piet-Loius asked whether it is technically possible to have regional chapters in IMCG. Consultation of the constitution learns that article 19.1. provides the possibility to “create committees comprising three or more members of the Society.” Such committees “must give an accounting at least once annually to the Main Board.”

Piet-Loius and Jan reported on the 2004 South Africa meeting: The preparations run smoothly: the programme is fixed, most venues and accommodations are booked, the costs are clear. A special workshop will be organised in Lesotho. The next task is to prepare informative handouts with involvement of local organisations. A (sponsored) video will be made. The SA Minister of Environmental Affairs will probably do the opening. The calculated € 1,100 (early payment € 1,000) are sufficient to cover all costs. Fundraising, for sponsorship, is handled by a special NGO. Some sponsorship will be available for participants from Southern Africa. To support other members to arrange their sponsorship themselves, Tatiana will make an overview of fundraising possibilities and put this on the IMCG website. An abstract volume of the papers will be made available at the symposium. The proceedings of the conference will be published afterwards, possibly in the International Journal of Peat and Peatlands (IJPP, see below).

Sufficient attention will be paid to publicity, partly through the Working for Wetlands initiative. Press conferences with press releases and media information will be organised at the beginning and at the end of the trip/meetings. Local press campaigns (cf. France 2002) are more difficult because of lack of involved people. A logo for the meetings has to be made. A PR plan will be made and sent to the Main Board for feedback.

A call for draft resolutions will be made in the Newsletter. Draft resolutions should also identify the apparatus to which the resolution has to be directed or sent. The draft resolutions will be circulated among the Main Board members and put on the website with the request to send reactions to the IMCG Secretariat. Background information will be published in the Newsletter.

In general, it is necessary to keep track of the reactions on the resolutions for feedback and follow-

up. For that purpose, the Secretariat will ask submitters of resolutions of the General Assembly 2002 to report on the effects of the resolution for the Newsletter.

Hans will visit Tierra del Fuego in February-March 2004 to discuss mire conservation issues with the government and to discuss the possibilities of a workshop/symposium in 2005/2006.

No news is yet available from Finland 2006. An important issue to discuss in Finland will be the relation between greenhouse gas balance and peatland forestry.

No concrete plans are available for the 2008 meeting. Donal Clarke has invited IMCG to consider a joint meeting with the International Peat Congress in Dublin, but the EC sees as yet no benefits from this. We should try to plan the topics strategically to address urgent and globally important issues. Areas/topics brought forward include Western Siberia (oil exploration and exploitation) and Central Asia (aridisation, desertification).

The IMCG Website is currently being reorganised to include all papers and resolutions of all former IMCG congresses and workshops. Several of the papers of the Kushiro conference (1996) will be published in Issue 12 of the Int. Peat Journal, which should be published before the end of 2003. Thanks are due to Olivia Bragg for organizing the publication.

#### *Contacts other organisations*

Richard Lindsay has offered to fill up the vacancy of IMCG representative in the European Habitat Forum. The EC accepts and applauds this offer.

The IUCN Commission on Ecosystem management will be invited to South Africa 2004 and will "support" our conference.

IMCG EC sees no necessity to pursue a Memorandum of Understanding with the Society of Wetlands Scientists. Barry Warner has not reacted on requests for more information.

The meeting with the International Peat Society on November 2 was prepared. The minutes of this meeting sufficiently reflect this preparation (see elsewhere in this Newsletter). An IMCG input into the IPS Tampere 2004 conference will, amongst others, take place via the special workshop "The Future of Peatlands."

The meeting of the Global Peatland Initiative of November 3 was prepared. The DGIS (Netherlands) financing will not continue in 2004. The whole package that Wetlands International had submitted, of which GPI was a part, was not granted. Whereas the GPI project vetting procedure had improved, the bringing in of extra funds is still not satisfactorily organized. Although IMCG keeps pressing for it, still no project portfolio is available, and no procedure for gathering project proposals has been developed. This seriously hampers the finding of additional funds.

No contract has been signed yet for the GPI website that next to the IMCG website will be managed by Michael Trepel.

The main IMCG contribution to the Ramsar Convention Scientific and Technical Review Panel (STRP) is via the Coordinating Committee (CoCo) for the Implementation of the Global Action Plan for Peatlands (GAPP). This CoCo will meet for the first time on November 5-6 following the IMCG EC meeting to draft an implementation plan identifying priority action items. The EC reviewed the tasks of the CoCo and the possible contribution of IMCG.

In the framework of the 3rd Joint Work Plan between the Ramsar Convention and the Convention on Bio-Diversity, IMCG has offered STRP to contribute to one of the items: forest ecosystems, with special attention to forested peatlands. The STRP has further asked support in drafting a report on "groundwater and wetlands." Tanja will inform the STRP that specialists of IMCG are interested to contribute.

#### *IMCG Action plan*

The EC discussed progress with respect to the IMCG Action Plan (2002 – 2006) (see [www.imcg.net/imcgmiss.htm](http://www.imcg.net/imcgmiss.htm))

**A.1.** Assessment of the global distribution and condition of mires and peatlands: the Report "The global status of mires and peatlands" is on schedule and will be ready at the end of 2003.

**A.2.** Development of a globally valid system of mire types and an overview of their distribution: Jan Sliva will organize a concluding workshop in 2004 filling in the gaps from the Tamsweg workshop.

**A.3.** Development of a globally unified consistent mire terminology: Publication will take place in the European Mires Book in 2004.

**A.4.** Stimulation of regional mire and peatland inventories:

A.4.1. Working group Southern Africa was installed in 2002; further expansion to tropical Africa is underway.

A.4.2. Project development and fundraising is in a vicious circle because of the failure of GPI to develop a project portfolio.

A.4.3. The production of an overview of mire and peatland diversity and conservation status in Europe: Finances for printing are secured. Most chapters are ready The Russia chapter is foreseen to be submitted in January 2004. A start has been made with organizing Europe-wide maps of mire types. Publication is scheduled for 2004

A.4.4. The production of an overview of mire and peatland diversity and conservation status in Southern Africa: a report will be produced related to Ramsar Uganda 2005 to stimulate further integrated inventory.

A.4.5. The production of an overview of mire and peatland diversity and conservation status of Russia. The European part will be covered by the European Mires Book. It is foreseen to produce separate overviews for West and Central Siberia

(probably 2006) and for Yakutia and the Far East (2007?).

A.4.6. Starting the identification of the mire and peatland diversity and conservation status of South America: IUCN is working on paramos; WI Argentina is currently working on an inventory of Patagonian peatlands.

**A.5.** Identification of the main functions and values of mires and peatlands on a global scale:

A.5.1. The collection of qualitative and quantitative information has been realised in the Wise Use book.

A.5.2. The ongoing synthesis of global databases on mire flora, vegetation, and mire plant ecology: because of absence of Philippe no information is available on progress. Question: how to involve more members?

A.5.3. To start a mire fauna database: no initiatives yet. Hans will approach Stefan Hotes. Question: What should be the content of that database?

A.6. Formulation of Ramsar Guidelines for peatland sites: Guidelines were endorsed by Ramsar COP8 in Valencia, November 2002

**B.1.** Identification of the main threats and of mechanisms to avoid them

B.1.1. and B.1.3. The inventory of regional threats and their effects: Michael Trepel and Tanja Minaeva are developing a dynamic database on regional threats on the IMCG website. Regional peatland overviews will include the threats.

B.1.2. The development of an infrastructure for membership expertise exchange: Jan Sliva has sent around request for filling in of expertise form, but up until now with little response.

**B.2.** Promotion of the conservation of mires in hot spots

B.2.1. The development and operation of a hot line for mire threats incl. a mechanism for feedback: see B.1.1.

B.2.2. The acquisition of funds for the provision of free expertise for hot spots: no progress.

**C.1.** Permanent IMCG involvement in international mire conservation policy

C.1.1. Cooperation with partner organizations: see above

C.1.2. Continued participation in the Ramsar STRP: see above, incl. CoCo-GAP

C.1.3. Pro-active participation in the Steering Group of the Global Peatland Initiative

C.1.4. Stimulation of mire/peatland related aspects in the Convention on Biodiversity: in the framework of the joint Ramsar-CBD Working Plan, IMCG will provide data on distribution, management options, and recommendations for peatland forests. Contact with CBD will also be provided via CoCo-GAP.

C.1.5. Stimulation of mire/peatland related aspects in the UNFCCC and the Kyoto process: Hans Joosten has contributed to a report about climate

change and biodiversity to be presented at the UNFCCC CoP in Milan (Dec. 2003). Contact with UNFCCC will also be provided via CoCo-GAP.

**C.2.** An effective global network of mire conservationists

C.2.1. The production and distribution of a regular Newsletter: runs smoothly

C.2.2. The maintenance of a Website: runs smoothly

C.2.3. The wide distribution of IMCG information material: The IMCG flyer has not yet been produced. Tanja Minaeva received € 300 to print the flyer in Russia. IMCG Membership grows according to planning.

C.2.4. The expansion of IMCG membership in Southern Africa: runs successfully. Saded involvement is realized.

C.2.5. The preparation of the 2004 IMCG Congress in South Africa: runs smoothly.

C.2.6. The expansion of IMCG membership in South America: no substantial progress

C.2.7. The preparation of an IMCG Symposium in South America 2005/2006: see above

C.2.8. The support of national and local initiatives in mire conservation: see B.1.2.

**C.3.** Provision of free exchange of information

C.3.1. The organization of meetings, symposia, and workshops: see above

C.3.2. The preparation of publications: in 2003 only the Newsletter was produced. The publication "Global status" is in preparation (see A.1.)

**C.4.** Development and implementation of a policy on economic incentives for mire conservation

C.4.1. Development of a policy on certification and ecolabelling: Draft discussion papers have been produced by Donal Clarke (IPS) and Olly Watts (RSPB). The issue will be discussed in the meeting with IPS (see there).

C.4.2. The stimulation of the development and the use of peat alternatives: no progress. Hans Joosten will contact our UK members to create a link of our website to relevant UK websites.

C.4.3. The promotion of adequate labelling, certification, and licensing of peatland related products and activities: see 4.1.

C.4.4. The promotion of "debts for nature swaps" for mire conservation

**C.5.** Awareness campaign: Wise Use statements in various languages have still to be made available on the IMCG website. A new vehicle could be the Int. Journal of Peat and Peatlands (see minutes meeting IPS/IMCG).

In Southern Africa information material is required for illiterate people. Furthermore there is a demand for a "Wise Use of Peatlands for children and ministers." This will be brought in to the CoCo-GAP.

*Next meeting*

A next meeting has not yet been scheduled because of absence of two of the EC members.

## Meeting IMCG / IPS

*November 2, 2003 Amsterdam, Netherlands*

This year the annual meeting between the IMCG and the International Peat Society took place in Amsterdam on November 2. For IMCG Jan Sliva, Michael Trepel, Piet-Louis Grundling, Hans Joosten, Andrej Sirin, Tatiana Minaeva, Faizal Parish, and Tang Yiew Chee were attending. IPS was represented by Gerry Hood, Jean-Yves Daigle, Donal Clarke, Jack Rieley, Markku Mäkelä, Raimo Sopo, Gerfried Caspers, Tomasz Brandyk, and Magnus Brandel.

With respect to the marketing of *The Wise Use of Mires and Peatlands* book (WUMP) we discussed the sales and costs to date. Some questions remained to be discussed between the IMCG and the IPS secretariat. It was agreed that the surplus funds would be split 50/50 between the two organisations. It was suggested that additional steps could be taken to sell the book, using the flyer drafted by Stuart Brooks, by addressing university libraries. IMCG wished to ensure a copy of the book would be sent to each country's National Library as this would make it widely available. It was agreed this would be done from residual stocks as soon as the agreement with NHBS permitted. Furthermore we agreed that we should monitor the impact of the Wise Use project by preparing a report on what had happened by November 2005 with an interim review as of November 2004. In anticipation of the review, actions should be taken to encourage the use of the Wise Use framework in practice, e.g. by holding of seminars for land-use planners. Reports were given on actions already taken in Finland, Ireland, and Canada to promote the book among decision-makers. Projects under way in S.E. Asia were cited as current examples of action being taken. A number of suggestions were made for ways of translating the theoretical framework of the book into more user-friendly formats, such as the development of training modules. It was noted that the Wise Use Statement summarised the essence of the book for lay readers. It was suggested that a simpler document ("Wise use for children and ministers") would be useful.

The meeting of the Ramsar Co-ordinating Committee for Global Action on Peatlands for 5 and 6 November 2003 in Wageningen was discussed. Several speakers held the view that the Ramsar bureau was seeking to downgrade peatlands and water down the Global Action Plan, as they did not feel it had the resources to support the Plan. It appeared that the Ramsar bureau wished to transfer responsibility for implementing the Plan to the IPS and the IMCG whereas Resolution VIII.17 clearly assigned this responsibility to contracting parties.

A list of actions taken by the IPS and the IMCG consistent with the GAP was presented. It was agreed that IPS and IMCG would seek co-chairing of the Co-ordinating Committee. It was further agreed that

IPS and IMCG would co-operate as far as possible in providing information and technical assistance towards the implementation of the GAP.

The meeting of the Global Peatland Initiative (GPI) scheduled for 3 November 2003 in Amsterdam was prepared. It was noted that the funding for GPI had hitherto been provided by the Dutch Government, but that the latter had not accepted projects for funding beyond 31/12/2003. Many speakers agreed that the GPI concept was a good one, but that it had hitherto functioned as a funding mechanism rather than an initiative. It was agreed that IMCG and IPS would continue to co-operate with the GPI for the time being.

Some discussion took place on the Certification of peat and peatlands. An internal IPS document had been circulated before the meeting to illustrate one possible shape of a certification system. It was noted that the peat industries in Canada and Finland were examining different forms of certification or labelling, and the idea was also under study in Russia. A presentation was made on a process for agreeing indicators and criteria that could be used in a certification system. The meeting was informed that the question would be discussed by the industrial member of the IPS at a Commission II meeting on Monday 3 November 2003.

There was no IPS consensus on the matter. Some industrial members were inclined to favour some form of licensing or labelling, others were agnostic or disinclined. The IMCG had neither come to any view on the matter. IMCG expressed the view that IMCG and IPS would likely approach the issue differently. The aim for peat producers would be to find an instrument for the protection of peat use and commerce and the IPS would thus be inclined to develop a "good versus bad" system of certification. IMCG would see the issue as labelling peat as "bad, worse, and worst." If a system might get rid of the worst things first then perhaps IMCG members might consider it. IMCG considered that certification/labelling was primarily a matter for peat producers, who should agree among themselves if they think it is something worth pursuing and if so why they would do it.

It was agreed that the issue would be pursued by IPS Commission II and that the IMCG would be kept informed of developments on an ongoing basis.

With respect to the International Peat Journal the meeting recognised the value of the journal in disseminating peer-reviewed information on aspects of peatlands not dealt with by any other scientific journals, and in publishing descriptive material. IPS was concerned with the difficulties in obtaining

sufficient contributions of adequate quality, the low circulation, the heavy workload imposed on the editor and, at times, the additional burden on the IPS secretariat.

IMCG made a proposal for co-operating on a successor journal, and suggested that Dr Olivia Bragg could succeed Dr J Rieley as Editor when he gave up the position in 2004. It was agreed that IPS and IMCG would co-operate to produce a high-quality, refereed journal, which would appear on a regular basis and would be freely available on the Internet. It was suggested that the successor Journal could make a valuable contribution by translating some Finnish articles from 'Suo' and some German articles from 'Telma'.

On several other items information was exchanged including on the progress of the IMCG Global Peatland Classification and Terminology Project; the IMCG universal mire lexicon work of Ronald Hofstetter; the IPS work on restoration terminology under Dr Blankenburg; and the IPS Peat Dictionary project. The IMCG would seek assistance from IPS members for its classification work. The IMCG outlined its current work in preparing a worldwide overview of the status of mires and peatlands, including their condition, uses, and expected trends. IPS members were anxious that this material be presented as comprehensively as possible at the Tampere Congress.

The meeting was briefed on an IMCG overview of criteria and indicators to value mires and peatlands and a checklist for identifying mires and peatlands of international importance with respect to biodiversity conservation. This overview is available under <http://www.imcg.net/docum/criteria.htm>

A mechanism would be useful whereby when a conflict arose each organisation could contact the other with a view to mediation or resolution. It was agreed that the contact should be between the secretariats or chairmen.

The meeting was informed that a group of companies was funding the preparation of a 'Wise Use' DVD that would follow the format and tone of the WUMP.

An information paper had been produced which would be communicated to IMCG. IMCG expressed concern that the concept 'Wise Use' had been agreed between the IPS and the IMCG in the WUMP context and said that it would not be acceptable if it were taken out of context in support of an IPS-associated project. It was agreed that the latest drafts of the DVD material would be communicated to IMCG.

Information on the GEF project Integrated Management of Peatlands for Biodiversity and Climate Change and on the related ASEAN Peatland Management Initiative was provided by the Global Environment Centre.

IMCG made a proposal that a special round table be arranged at Tampere to forecast or vision the future of peatland forestry, agriculture, conservation, other peatland functional uses, and peat extraction. This proposal was agreed. The need to arrange a time during the Congress and to pick presenters was emphasised.

It was noted that on occasion seminars or other events in different countries were arranged for the same dates and clashed with each other. It was agreed that all organisers of peatland-related events should be encouraged to liaise with the IPS and the IMCG and check their websites for event programmes.

It was noted that there were opportunities to co-operate on valuable joint research projects for which EU funding might be available. It was agreed that a small group from the two organisations might communicate further on this.

The attention of the meeting was drawn to the 11th IMCG Congress on 'South African Mires and Peatlands' which is scheduled to take place from 10 to 27 September 2004 in South Africa and Lesotho.

It was agreed that the next meeting should take place in November 2004; further details would be agreed in Tampere in June 2004.

(Based on the full minutes of the meeting made by Donal Clarke and available under <http://www.peatsociety.fi/events/ipsimcgminutesamsterdam.doc>)

## The Ramsar CoCo-GAP

*November 5-6, 2003 Wageningen, Netherlands*

The Ramsar Coordinating Committee for Global Action on Peatlands (CoCo-GAP) held its start up meeting in Wageningen, the Netherlands, on 5 and 6 November 2003 with financial support of the Global Peatlands Initiative.

Participants: Tobias Salathe, Vincent van den Berk, Zhang Xiaohong, Randy Milton, Olga Belyakova, Tatiana Minaeva, Jan Sliva, Hans Joosten, Jack Rieley, Bambang Setiadi, Herbert Diemont, Piet-Louis Grundling, Robert Hofstede, Faizal Parish, Chee Tong Yiew, Marcel Silvius, Chris Baker, Alexander Kozulin, and Henk Ritzema. Apologies received from: Ton van der Zon, Henk Eggink, David Stroud, Francisco Rilla Manta, Eckhardt Kuijken, Gerry Hood, Willem Ferwerda, David Pritchard, Jamie Pittock, Abdullah Keizrul, Stuart Brooks, David Coates, and Rocio Lichte.

The meeting was chaired by Tobias Salathé, focal point for peatland issues in the Ramsar Bureau. He recalled the history leading to the establishment of the CoCo-GAP, requested by Resolution VIII.17 adopted at Ramsar COP8 (Spain, November 2002).

The task of the CoCo-GAP is to promote, monitor, and review the implementation of the Guidelines for Global Action on Peatlands (GGAP). The CoCo-GAP reports to COP9 and recommends to COP9 priorities for the 2006-2008 triennium.

It operates independently from but via personal and operational links in close coordination with the Ramsar Bureau and the Ramsar Scientific and Technical Review Panel.

The initial meeting served

- i) to establish an overview/analysis of ongoing peatland activities and programmes,
- ii) to identify relevant gaps,
- iii) to prepare an implementation plan for Global Action on Peatlands, and
- iv) to adopt a plan of work, monitoring and reporting to COP9.

The meeting decided on the way the CoCo-GAP will operate during the triennium, and on the possible co-option of additional members. Work of the CoCo-GAP will be carried out via e-mail and with the help of the STRP Support Service.

The CoCo-GAP started with an analysis and overview of ongoing peatland activities and programmes in comparison with the seven priority approaches outlined in the Ramsar GGAP (see [http://ramsar.org/key\\_res\\_viii\\_17\\_e.htm](http://ramsar.org/key_res_viii_17_e.htm)).

Input from Ramsar Contracting Parties (and additional parties, e.g. IMCG members!) will be sought in the near future to complement this inventory, especially with respect to

- The status of national peatland inventories, including trend analyses (where possible),
- Lists of ongoing programmes and projects related to communication, education, training and awareness (CEPA), nomination of national peatland CEPA focal points (where possible),
- National Strategies and Action Plans related to peatlands, or as part of wetland strategies or biodiversity strategies,
- Best management practices demonstration projects,
- Centres of expertise, training facilities, and involvement of national institutions in international and/or transboundary regional networks,
- The incorporation of peatland issues in CBD and UNFCCC work programmes and related activities,
- Availability of funding mechanisms to support wise use projects for peatlands and operating costs of the CoCo-GAP (next meeting(s)),
- Their interest to be kept informed (and how) or to become more involved.

Depending on progress, during its second meeting the CoCo-GAP will probably divide its tasks among its members, to cover specific regions or themes in more depth. When National Reports for Ramsar COP9 will be submitted to the Ramsar Bureau, CoCo-GAP will have rapid access to their chapters related to peatlands.

The CoCo-GAP decided to hold a second meeting earlier than originally foreseen in order to assure that its work progresses according to plan. The meeting will take place on 6 June 2004, back-to-back with the 12th International Peat Congress to be held 6-11 June 2004 in Tampere, Finland. The main agenda points for the 2nd meeting will include the drafting of a resolution text (as a follow-up to Resolution VIII.17) and its report to COP9 with recommendations for the triennium 2005-2008. A possible third CoCo-GAP meeting could be held prior to COP9 in Uganda. In addition, it was noted that a side event during COP9 could be envisaged.

(Based on the draft minutes made by Marcel Silvius).

The CoCo-GAP is an open-ended committee of experts drawn from the Ramsar Bureau, Ramsar Contracting Parties, the Ramsar STRP, the IMCG, the IPS, the GPI, regions with significant peatland activities, the UNEP-GEF project on Integrated Management of Peatlands for Biodiversity and Climate Change, BirdLife International, IUCN, Wetlands International, WWF International, the International Commission on Irrigation and Drainage (ICID), the Convention on Biological Diversity (CBD), and the United Nations Framework Convention on Climate Change (UNFCCC). To work most efficiently, membership of the committee will be limited to about 20 experts. Membership of the CoCo-GAP should provide a good balance of areas of expertise and geographical linkages. National experts and experts from regions with significant peatland activities should assure feedback to their relevant government officials. Other members assure that the specific concerns, information, and expertise of the institutions they represent are taken into account. Participation in the CoCo-GAP is on an honorary basis. Members of the CoCo-GAP have the mandate to contact Ramsar Contracting Parties (countries) directly on behalf of the committee.

Secretarial support to the CoCo-GAP is provided by Wetlands International, using the STRP Support Service to facilitate the task.

## IMCG and IPS on mission in Brussels

*by Jan Sliva*

On 11 and 12 December 2003 Hans Joosten and Jan Sliva (EC IMCG), Richard Lindsay (former IMCG Chairman) as well as Donal Clark (IPS) spent time on "mission" in Brussels, to spread the word on Wise Use of Mire and Peatlands and to promote and raise funds for GPI initiatives. The city was in the chaotic state of emergency at the time, because of the disastrous EU summit and the general strike of the public traffic.

On 11 December the four of us met representatives of the European Commission (EC). From the EC side, Mr. Michael Hamell (Head of Sector Agriculture and Soil, European Commission, Environment Directorate-General) and Dr. Micheál O'Briain (Principal Administrator Nature Protection and Biodiversity, European Commission, Environment Directorate-General) attended the meeting.

After the extensive introduction of the current status of global peatlands (presentation Hans Joosten), Donal Clarke launched the WUMP Book and handed over 10 copies for responsible EC offices. After this, a discussion started on the recognition of mires and peatlands in the current EC documents and activities and on the opportunities of implementing the WUMP principles in the EC regulations in the future.

It was stated that there are major opportunities to consider the WUMP in the next EC Agricultural and Structural Funds. The preparation for that has to be done in the next two years; otherwise the door will be closed until 2013. The mechanisms of the involvement of IMCG/IPS expertise should be figured out.

In the afternoon of the same day, Jan, Hans, and Richard met representatives of the National Botanical Garden (Belgium) - Prof. Jan Rammeloo (Director NBG), Prof. Elmar Robbrecht (Head of Dept. Vascular Plants), and Dr. Ir. Jérôme Degreef. The aim of the meeting was to evaluate possibilities and opportunities for a joint project work (in scope of the Global Peatland Initiative) in the central African region.

After the introduction of the attendees, Jan Sliva presented the current status of GPI activities in Southern Africa. Mr. J. Rammeloo and E. Robbrecht informed the groups about the current status of botanical research in Central Africa, as well as about the current knowledge on mires and peatlands in the Congo/Ruanda/Burundi region. Discussion developed on the needs and opportunities within the scope of the political and economical situation in the central African countries as well as on the use and strengthening of still existent but very weak networks and on the joint project possibilities

At this moment the NBG is not able to support the GPI initiatives directly but is seriously interested in direct cooperation. This cooperation offer significantly increases the possibilities to reach (to

work in) this very critical, sensitive, and peatland-rich African region. A development of a book project proposal: Aquatic flora of Central Africa was envisaged. The proposal should meet interest and targets both of the GPI initiative and of the NBG, which will provide the professional capacity. Actually there are no funds of NBG to realise the project but IMCG will search for the funds via RAMSAR.

Several new contacts were proposed by the NBG colleagues to enhance our knowledge on central African peatlands: Dr. Eric Coppejans, Ghent University (Tropical Mangroves, Systematics and Classification), Dr. N. Koedam, University of Brussels (Tropical Mangroves, Functionality), and Dr. Symoens, Aquatic Flora of the central African region.

On Friday 12 December Jan continued the mission. The next two meetings took place with the representatives of the Ministry of Flanders

First, Dr. Rudy L. Herman, (Senior Researcher, Science and Innovation Administration Technology and Innovation Division) was informed about the IMCG and GPI-related activities in southern Africa. Mr. R. Herman brought an extensive overview of environmental projects and research in Southern Africa supported or managed by the Ministry of Flanders. Joint activities of mutual interest were looked for and several opportunities found.

As a result one can state that there is a chance of GPI activities on the field of wise use water management and biodiversity conservation within the UNESCO program SIMDAS (Sustainable Integrated Management and Development of Arid and Semiarid Regions of Southern Africa), approved by the UNESCO General Conference just in the autumn of 2003 (detailed program material handed out). The rather broadly conceived programme document includes, among others, activities on (i) integrated management of river basins and groundwater resources, and (ii) integrated national and transboundary ecosystem protection, where peatlands and mires play a significant role.

It was proposed that IMCG – on behalf of Dr. Herman – directly approaches the UNESCO representatives responsible for research and project network development, to introduce them to the GPI in general and inform them on GPI projects in Southern Africa (UNESCO is seriously interested in the inclusion of already ongoing activities into the SIMDAS programme), and to figure out the possibilities for the further funding of SIMDAS-related GPI activities from the SIMDAS fund (total \$19,878,960).

Proposed contacts are:

Dr. A. Szollosi-Nagy, ADG UNESCO, Executive Secretary IHP/UNESCO, Paris

Ms. Alice Aureli, UNESCO officer for SIMDAS, Paris

Dr. Luc Brendonck, Laboratory of Aquatic Ecology, K.U.Leuven, Leuven, Belgium

Mr. Jurgen Tack, Institute for Nature Conservation (EU Platform for Biodiversity Research Strategy)

Later, Mr. Jan Ceulemans, and Mr. Peter Desmet joined the meeting and the discussion concentrated especially on the social-related environmental projects in KwaZulu Natal, where the Ministry is currently actively involved. After Jan's introduction of the GPI project Maputaland, its main objectives and goals, and the envisaged second phase, Mr. Ceulemans and Mr. Desmet informed on the development cooperation project between the

Flemish Government and the South-African Government: Implementation of the Greater St Lucia Wetland Park Authority Tourism Skills Development Project KwaZulu Natal (detailed material handed out). The project was approved and had started two months ago. There is still a realistic chance of participation in project parts that meet the interests of all partners. Thus, IMCG will a.s.a.p. prepare a concept how to participate with already existing MAPUTALAND capacity in the Flemish project.

The mission can be considered as successful, opening new partnerships and joint opportunities. We thank Geert Raeymaekers who organized the contacts with the NBG and the Ministry.

---

### **IMCG Resolutions**

#### **Submit your draft resolutions!**

The IMCG General Assembly in South Africa 2004 will again discuss and adopt resolutions. To streamline the procedure, IMCG members are requested to submit their draft resolution timely, i.e. as soon as possible, to the IMCG secretariat. This will enable to circulate the draft resolutions among the Main Board, to publish the necessary background information in the IMCG Newsletters of March and June 2004, and to put the drafts on our website so that everybody can send reactions (to the IMCG Secretariat).

Draft resolutions should identify the apparatus and bodies to which the resolution has to be directed and send. Examples (phrasing and content) of resolutions can be found on the IMCG website ([www.imcg.net/docum/france/fires.htm](http://www.imcg.net/docum/france/fires.htm)).

Below you can find the core content of two resolutions of IMCG France 2002 and the results. More will follow in the next Newsletter.

#### *Finland:*

Resolution 2002: Within Europe, Finland has a special importance with respect to the extent and quality of its peatlands, and in particular of its undisturbed, living mires. Finland is also known and respected throughout the world for the high quality of its research and education of students in mire ecology. In view of these facts, the IMCG is dismayed to learn that the almost 10 university chairs that were previously occupied by mire ecologists have now all been re-filled by specialists in other disciplines, and that mires have almost ceased to feature in the curricula offered by the country's universities. Because of these changes, Finland may very soon have no mire scientists and teachers, and no specialists able to make nature inventories for mires.

Accordingly, the IMCG urges the Finnish Ministry of Education and the Academy of Finland to critically re-examine the balance of disciplines that are represented within its universities. Furthermore, the IMCG asks that these bodies should give urgent attention to possibilities for reinstating educational opportunities and research funding in mire ecology to a level that is consistent with the importance of Finland's mire resource, at both national and international scales.

#### *Results:*

No feed back was received until now. Additional pressure is put on the responsible bodies through the Finnish Nature Conservation Association. During 2003 the correctness of our resolution has, however, been painfully proven. In too many cases it has become evident that the collapse of mire education in the Finnish universities and other institutes causes serious problems in finding people e.g. to make inventories on biotopes and species in nature reserves (there is a big 5-year project going on in Finland) or to make restoration plans and connected inventories or for monitoring in EU LIFE projects. For a job in a LIFE restoration project on forests and mires to be started in eastern Finland in January, for example, 76 persons applied. There was only one person who can reliably identify mire plants (including mosses), but that person was not chosen for the job. Anyway, the Ministry of the Environment seems to support the IMCG 2006 Field Symposium and General Assembly in Finland, and hopefully it will raise awareness on mires here. At the moment mires are not regarded as priority habitats in the nature conservation research strategy of the Finnish Ministry of the Environment, which means that there is practically no funding from the ministry to mire research.

(reported by Raimo Heikkilä)

### *Hungary*

Resolution 2002: In the past, more than 1% of the territory of Hungary was covered by mires. This is a substantial area considering the climatic conditions of the Carpathian basin. The extensive Hungarian mire systems, for example Ecsedi lap and Hanság, were lost during water regulation works in the 19th and 20th centuries. Now, more than 97% of Hungary's mires have been drained so that protection of the remnants is of the highest importance to the biological diversity and natural heritage of Hungary, as well as at international scale.

In view of this, the IMCG is pleased to learn that the Hungarian government has provided legal protection for wetlands, mires, and their remnants within the national ecological network; and that the protection process takes into account the whole of each mire complex, together with a buffer zone. The Hungarian practice of updating the national mire inventory every year is exemplary.

We are also encouraged to hear of Hungary's achievements in preventing further destructive activities (e.g. drainage and industrial mining) on some mires; in initiating mire restoration schemes; in establishing the principle that land use and development planning procedures should take some account of the national and Natura 2000 networks (which contain mires, beside other valuable habitat types); towards developing a national strategy for the conservation of mires; and towards incorporating principles of "wetland wise use" in national policies such as the proposed National Environment Programme.

However, IMCG asks the Hungarian government to renew efforts towards establishing the local agreements and partnerships with land users that will enable the Natura 2000 network to be completed. In particular, the introduction of a scheme to provide reasonable compensation and other financial incentives to land owners and users is recommended. IMCG also suggests that there should be a management plan for every protected mire and that this should be revised regularly. Prospects for bringing Hungary's valuable mires to favourable conservation status would be greatly enhanced by establishing a national monitoring system; by conducting research on mires and peatlands (particularly research for nature conservation); by introducing education programmes to establish study paths related to mires; and by encouraging the collaboration of non-governmental organisations with state agencies in the management of peatlands.

### *Results:*

As was written in the resolution, the legal protection for mires is provided in the Hungarian Act for Nature Conservation (No. LIII. /1996), since every mire is protected "ex lege" (by the virtue of law). The real

protection procedure was very hard because of the lack of definition for mire. This year the definitions of mires, sodic lakes, tumuli etc. were replaced and built into this main act, so the protection in courts became more effective.

As every year, the Hungarian national park directorates prepared their reports about their annual activity, and among others they gave an account about the condition of mires.

This inventory showed that because of the extremely dry climate conditions a lot of small mire had dried up. On the other hand some new mires were found in the less known southern part of the country.

National Park Directorate	Ex lege protected mires in Hungary (2003.)	
	ha	number
Aggtelek National Park Directorate	4614	51
Balaton-Upplands National park Directorate	13300	120
Bükk National Park Directorate	2029	29
Duna-Dráva National Park Directorate	8442	108
Duna-Ipoly National Park Directorate	10695	79
Fertő-Hanság National Park Directorate	919	23
Hortobágy National Park Directorate	6492	201
Kiskunság National Park Directorate	16475	124
Körös-Maros National Park Directorate	0	0
Órség National Park Directorate	1697	96
Sum total:	64 663	831

The protection of mires (rehabilitation, reconstruction) was also built into the National Environment Programme compiled this year, which contains the main required activities on nature conservation for the next 6 years.

For 18 of the most valuable mires a management plan was prepared, or almost finished by the colleges at the national parks, including plans for improving the circumstances for education (study path) and ecotourism.

As the IMCG resolution was also sent to the National Committee of Mire and Peat Society, they got in touch with us. Due to this cooperation the Hungarian Office for Nature Conservation has received useful information and recommendations. To sum up the result of the resolution, many of the recommendations were attained this year, but of course there is still much work to do for mires in Hungary.

(Reported by Rozalia Érdi and Krisztina Koc)

## UNFCCC Conference and Peatland Side Event

The 188 Parties to the United Nations Climate Change Convention (UNFCCC) have met in Milan from 1 to 12 December to assess progress in addressing climate change and to set the global agenda for the coming year.

The Milan conference evaluated the efforts that governments have been making to tackle the climate change challenge. The “national communications” that they submit on a regular basis reveal that the combined emissions of Europe, Japan, the US, and other highly industrialized countries could grow by 8% from 2000 to 2010 (or to about 17% over 1990 levels) despite domestic measures currently in place to limit them.

At the same time, it is clear that governments are adopting more comprehensive and ambitious policies and measures for cutting emissions than they did just several years ago. Although the 1997 Kyoto Protocol has not yet entered into force, many governments cite its influence on their efforts to reinforce domestic climate change policies. The Protocol has been ratified by 119 Parties, but its entry into force depends on the ratification by the Russian Federation. The conference saw major achievements on the Protocol’s Clean Development Mechanism. Thanks to two years of intensive work, the CDM is now operational and the first projects will be registered early next year. (The CDM promotes sustainable development in developing countries by channelling private-sector investment into emission reduction projects, while offering industrialized countries credits against their Kyoto Protocol targets)

Two funds, the Special Climate Change Fund and the Least Developed Countries Fund, which will support technology transfer, adaptation projects, and other activities, were further developed. The European Union, Canada, Iceland, New Zealand, Norway, and Switzerland renewed an earlier pledge to contribute 410 million USD annually to developing countries through these funds and other avenues.

The meeting also focused on what needs to be done to help countries cope with the impacts of climate change. In addition to the formal intergovernmental talks, a wide spectrum of initiatives and institutions tackled a wider range of issues during numerous side events. A peatland side event took place on the 2nd of December.

Under the title of “Peatlands and climate change: Carbon store or source?” this side event was presented by the Global Environment Centre, Wildlife Habitat Canada, and Wetlands International with representatives of IMCG present.

Peatlands form one of the world’s largest carbon stores with an estimated 550 billion tonnes of stored carbon equivalent to 100 years of fossil fuel emissions or 75% of the carbon in the atmosphere. They are found in 150 countries from Polar to tropical region and have multiple values for carbon storage, biodiversity, water storage and supply, and economic and social benefits. Peatlands store more

carbon per unit area than other ecosystems with up to 5000 tonnes per hectare being stored in tropical peat swamp forests – 10-15 times more than other forest types. Furthermore, besides being net carbon sinks, they form one of the few long-term carbon stores among terrestrial ecosystems – almost all of the world’s coal deposits were originally peatlands.

Degradation of peatlands occurs through drainage, mining, or fire and releases massive amounts of stored carbon. Fires can burn in drained peatlands for months and generate massive smoke clouds, which have major social, economic, and health impacts. Peatlands are vulnerable to changing climate regimes (warming, drying, and extreme events) and action is needed to minimise impacts.

Sustainable management of peatlands can bring climate change, biodiversity, and socio-economic benefits and can be combined with livelihood development for local communities. Human induced emissions from peatlands can be reduced through simple management measures (controlled drainage, fire prevention, rehabilitation).

The importance for carbon storage and climate regulation has been recognized by other conventions such as the Convention on Biological Diversity and the Ramsar Convention on Wetlands. To date peatlands have not been given adequate attention in deliberations in the framework of the UNFCCC

Action is urgently needed to address a number of management problems. Remaining intact peatlands need to be protected for their carbon store functions. Further clearance and drainage of peatlands must be restricted and controlled. Sustainable use of peatlands with positive climate effects needs to be promoted. Water management in peatlands under agriculture must be improved to prevent subsidence and carbon loss. Peatland fires must be prevented and burnt and degraded peatlands must be rehabilitated.

National communications to the UNFCCC should better document extent and status of significant carbon stores such as peatlands and incorporate strategies to address mitigation and adaptation measure related to peatlands.

Faizal Parish, GEC, presented an overview on peatlands and climate change, noting that peatlands occur in 150 countries, and that Canada and the Russian Federation have the largest extent. Peatlands are important for forestry and biodiversity and play an important role in the global carbon cycle, as at least 550 billion tonnes of terrestrial carbon is stored in the peatlands system.

David Cooper, Secretariat UN Convention on Biological Diversity (CBD), said that certain climate change mitigation and adaptation measures could have negative impacts on biodiversity. He concluded that: there is a clear opportunity to implement mutually beneficial activities; these opportunities are rarely realized because of lack of coordination at national and international levels; and there is a range of tools available to help future coordination efforts.

Ed Wiken, Wildlife Habitat Canada, noted that peatlands contribute to domestic as well as international wildlife conservation and biodiversity goals. He explained a Canadian model used to predict sensitivity to climate change, noting that severe and very severe effects will occur on peatlands in the mid-belt of Canada.

Yus Rusila Noor, Wetlands International Asia Pacific, explained why peatlands are important in Indonesia, noting their linkages to biodiversity, climate change, hydrology, and sustainable livelihoods. He identified the threats to Indonesian peat swamp forests such as conversion of land, drainage, fires, and overexploitation. Noor highlighted Indonesia's community approaches to replanting, the debt-for-peatlands rehabilitation-swap, training to prevent forest fires, and restoration of hydrology.

Tatiana Minaeva, Wetlands International Russia, discussed peatlands and climate change in the Russian Federation. Minaeva noted that the UNFCCC does not adequately consider peatlands, and expressed hope that this gap would be addressed. She indicated that the Russian Federation has a high diversity of peatlands, and that agriculture is the main cause of peatland loss. She said more information on the integrative ecosystem management approach was needed in her country.

David Lee, Global Environment Centre, noted the existing networks for disseminating and discussing information on peatlands, the Southeast Asia Peat Network and PEAT-Portal. He expressed the hope that these networks would provide a platform for discussion on peatlands and climate change issues. Lee said awareness could be enhanced by use of the internet, collaborative networking, and the establishment of an e-community to exchange information and promote peatlands.

The participants discussed possible global activities on wetlands and climate change, ways to combat illegal logging at the local level, the need to quantify global peatland emissions, and the importance of relating peatlands to COP-9 issues, including methodologies for emissions, good practice guidance, and cooperation with other conventions.

The Microsoft power point presentations of the side event and other related documents can be downloaded from the Peat-Portal: <http://www.peat-portal.net/>. Due to the large size of some presentations, they had to be edited.

On the occasion of the UNFCCC 2003, the report of the Ad Hoc Technical Expert Group on Biological Diversity and Climate Change as CBD Technical Series #10, "Interlinkages Between Biological Diversity and Climate Change" was published. The document is available on the CBD website at: [www.biodiv.org/doc/publications/cbd-ts-10.pdf](http://www.biodiv.org/doc/publications/cbd-ts-10.pdf)

The Subsidiary Body on Scientific, Technical, and Technological Advice (SBSTTA) established an Ad hoc technical expert group on biological diversity and

climate change to carry out an assessment of the inter-linkages between biodiversity and climate change. The results are contained in this report, which draws upon best available scientific knowledge, including that provided by the Intergovernmental Panel on Climate Change.

This report will also be available during the forthcoming seventh meeting of the Conference of the Parties to the Convention on Biological Diversity being held in Malaysia from 9 to 20 February 2004.

A peatland relevant quote from the document follows: "Pristine mires play an important role with respect to global warming as carbon stores. Their impact on climate change due to the emission of methane (CH<sub>4</sub>) and nitrous oxide (N<sub>2</sub>O) is typically insignificant (Joosten and Clarke 2002). However, methane production can be high when water tables are within 20 cm of the surface. Mires and peatlands are characterized by their unique ability to accumulate and store dead plant material originating from mosses, sedges, reeds, shrubs, and trees (i.e., peat), under waterlogged conditions. About 50% of the dry organic matter of peat consists of carbon. Peatlands are the most prevalent wetland in the world, representing 50 to 70 percent of all wetlands, and covering more than four million km<sup>2</sup> – or three percent – of the land and freshwater surface of the planet (Lappalainen 1996). Between 270-370 Gt of carbon is currently stored in the peats of boreal and sub-boreal peatlands alone (Turunen et al. 2000). This means that, globally, peat represents about one-third of the total soil carbon pool (about 1395 Gt) (Post et al. 1982). Peat contains the equivalent of approximately 2/3 of all carbon in the atmosphere and carbon equivalent to all terrestrial biomass on the earth (Houghton et al. 1990).

"Peatlands exist on all continents, from tropical to polar zones, and from sea level to high altitude. Humans affect peatlands both directly, through drainage, land conversion, excavation, and inundation, and indirectly, as a result of air pollution, water contamination, water removal, and infrastructure development.

"Anthropogenic drainage has changed mires and peatlands from a global carbon sink to a global carbon (and other greenhouse gas) source, and afforestation and reforestation activities in recently drained peatlands may be inconsequential as carbon sequestration activities (Joosten and Clarke 2002). Human activities continue to be the most important factors affecting peatlands, both globally and locally, leading to a current annual decrease of the mire resource. When peatlands are drained to create more agricultural land N<sub>2</sub>O emissions are increased and these lands become more prone to fires. In some years greenhouse gas emissions from the burning of these drained peatlands (e.g., in South East Asia) may constitute a substantial portion of the global emissions (Page et al. 2002)."

See also [www.unfccc.int](http://www.unfccc.int).

## The Future of Peatlands

An IPS/IMCG workshop on  
mid- and long-term developments related to peatlands  
9th IPS Congress, Tampere (Finland), 11 June 2004

In the past decennia a wide range of developments has changed the focus of peatland utilisation. Technological progress has made peat into an increasingly efficient fuel for de-central energy generation in rural areas and into an ideal raw material for growing media for the expanding horticultural market. Peat soil degradation and socio-economic developments have led to the abandonment of agriculturally used peatlands over large parts of Europe, whereas in Southeast Asia virgin peatlands are being deforested and drained for the cultivation of cash crops. Peatland forestry in the boreal and temperate zones stopped expanding or is even retracting under secondary paludification (Russia), while in the tropics a massive deforestation of peatland forests is taking place. Biodiversity conservation and the safeguarding of various global, regional, and local environmental functions demand protection of extensive peatland areas.

The aim of this workshop is to discuss the mid- and long-term (20 – 50 year) developments with respect to peatland use and conservation worldwide. Can we extrapolate present trends into the future? Which aspects will become more important, which less? What will be the driving forces, including population growth and climate change? How will geographical differences express themselves?

The workshop will address the following themes:

- The future of peat use
- The future of peatland forestry
- The future of peatland agriculture
- The future of peatland conservation
- The future of peatland functional uses

Per theme one keynote speaker and two co-referents will present their ideas. The keynote speaker will give the general overview, whereas the co-referents will emphasise special points or will address the theme from a different point of view.

The workshop will be organized within the framework of the 12th International Peat Congress of the International Peat Society. The full papers and the discussions of the workshop are planned to be published as a special issue of the new peer-reviewed online International Journal of Peat and Peatlands.

## Perspectives of global peatland use and conservation

*by Hans Joosten*

### *Abstract*

Human exploitation has destroyed 800,000 km<sup>2</sup> (20%) of the mires on Earth, 50 % by agriculture, 30% by forestry, 10 % by peat extraction, and 10% by infrastructure development. Currently most of these destructive uses are economically no longer viable. Further drainage of mires for agriculture and forestry has largely stopped. The use of peat as an energy source remains only attractive for local socio-economic reasons. The demands for peat for professional horticulture are globally rising, but a first orientation on substitution of fossil peat by renewable resources is underway. Most mire and peatland losses in future are expected to result from infrastructure development (inundation for hydro-electricity, oil and gas exploitation, urbanisation). Indispensable exploitation, incl. peat extraction for growing media, can for now be concentrated on already degraded peatlands (800,000 km<sup>2</sup>!), but on

the longer run sustainability requires the substitution of fossil peat by renewable resources.

The international community is increasingly aware of the environmental problems associated with mire destruction and has recently taken various initiatives for stimulating the conservation and wise use of peatlands. Of special importance are the Guidelines for Global Action for Peatlands (Ramsar Convention, November 2002). The role of peatlands in mitigating climate change is still politically undervalued. In future the environmental functions of mires and peatlands must and will get more attention. This also requires the rewetting of degraded peatlands, which enables the combination of conservational aims (reducing peat oxidation, increasing biodiversity) with sustainable exploitation of biomass. All these developments lead to one conclusion: the Future of Peatlands is in Conservation!

### *Introduction*

Mires and peatlands<sup>1</sup> are characterised by the unique ability to accumulate and store as peat dead plant material originating from mosses, sedges, reeds, shrubs, and trees, under waterlogged conditions. Peatlands are the most widespread wetland types in the world, representing 50 to 70 percent of all wetlands and covering more than 4 million km<sup>2</sup> (3 %) of the land and freshwater surface of the planet. Peatlands exist on all continents, from tropical to arctic zones, and from sea level to high altitude. The largest known concentrations are found in Canada and Alaska, Northern Europe and Western Siberia, Southeast Asia, and parts of the Amazon basin, where more than 10 % of the land area is covered with peatlands. Mires store about one third of the soil carbon in the world and contain some 10% of the global liquid fresh water volume.

Approximately 80% of the original mire area is still in a largely pristine condition. On 25% of this pristine mire area, both in permafrost and in tropical peatlands, net peat accumulation may have stopped because of natural processes and recent climate change. But even then, peat is still actively accumulating on 60% of the former global mire extent.

Human exploitation has altered 800,000 km<sup>2</sup> of mires so severely that peat accumulation has stopped completely. In contrast to what is often thought, peat extraction is responsible for “only” 10 % of these losses. The available water, nutrients, organic soils, and space have made mires attractive for agriculture and forestry. 80% of global mire losses are attributable to the latter two types of land use. The remaining losses (10%) are largely caused by infrastructure development. As a result of these continuing activities, the global mire resource is decreasing by approximately 1 ‰ per year.

The international community is increasingly aware of the global problems that are associated with these changes. This insight has, together with the improved technical possibilities for worldwide communication, led to international conventions related to the conservation and wise use of mires and peatlands. This paper discusses the recent international developments with respect to peatland use and regulation. Unless otherwise indicated references for all data and statements can be found in Joosten & Clarke (2002).

### *Agriculture*

In general one can say, that the era of drainage of virgin mires for agriculture is over, because it is no longer profitable. Drained peatlands lead, certainly in the long term, to so many problems associated with

soil degradation, subsidence, and oxidation, that globally a retreat from peatlands to the better and sufficiently available mineral soils can be observed. The General Agreement on Tariffs and Trade (GATT) and other global economic developments will stimulate this tendency.

Currently only few new peatlands are reclaimed. The government of Sarawak (Southeast Asia) has planned the conversion of about 3,000 km<sup>2</sup> of peatland swamps into agricultural land for oil palm, forest plantation, sago, aquaculture, paddy, and vegetables. In this project, that has to be completed in 2020, a balance is sought between land use, peat characteristics, and sound water management to minimise subsidence and associated environmental problems.

The largest recent example of disastrous drainage for agriculture is the Mega Rice Project in Kalimantan (Indonesia) where since 1995 almost 10,000 km<sup>2</sup> of peatlands were drained for rice production. Without taking the hydraulic and hydromorphological properties of peatlands into account, gigantic drainage canals were dug, leading to subsidence, desiccation, peat oxidation, acidification by sulphide oxidation, and fire hazard. Since 1997 immense, uncontrollable fires ravage the area with enormous environmental consequences.

### *Forestry*

The largest “boom” in peatland drainage for forestry took place in the 1970s, when huge areas were drained in especially Finland, Russia, and Sweden. As also for forestry sufficient better mineral soils are available no further areas are being drained. Existent peatland forests are largely continued which requires maintenance of the drainage systems.

In Russia, where the ditches are often no longer maintained, possibly half of the formerly drained peatland forests are re-paludifying.

### *Peat extraction for energy*

Peat is still an important local or regional energy source in Finland, Ireland, and Sweden. It also continues to be important in the Baltic States, Belarus, and Russia and is in smaller volumes used in many other countries, including China, Indonesia, and Burundi.

In recent years technical developments have led to lower, more competitive peat prices. On the other hand the deregulation of the EU electricity market has caused a smaller demand and a clear overcapacity of peat energy.

As peat is more expensive and emits more CO<sub>2</sub> per unit energy than other fossil fuels, peat as an energy source is only interesting for regional or domestic socio-economic reasons. In Finland and Ireland employment in the rural area is the most important motive, whereas in eastern countries the pursued independence from Russian oil and gas imports and the lack of foreign currency are the driving factors. The volumes of peat necessary for energy generation are, however, huge. It is estimated that by 2020 the

<sup>1</sup> A peatland is an area of landscape with a naturally accumulated peat layer on its surface. A mire is a peatland on which peat is currently forming and accumulating. All mires are peatlands but peatlands that are no longer accumulating peat would not be considered mires anymore.

formerly peat-rich Ireland will have exhausted all of its peat resources...

Similar to the 1973 Oil Crisis, which led to a re-orientation on fuel peat in Sweden, Finland, the USA, and many other states, global oil politics (cf. Afghanistan, Iraq) may affect the use of peat as an energy source in the near future. The Russian government has the intention to enlarge the domestic use of fuel peat in order to be able to export more oil and gas to the West.

#### *Peat as soil improver*

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 largely collapsed since 1991.

In Western Europe increasing volumes of composts are produced from organic waste (especially household refuse), which replace peat on the less exacting markets, such as hobby gardening and soil improvement. The price of compost is completely artificial as processing of household refuse is paid by the citizens. Furthermore, since production of composts takes place locally, transport costs are low in comparison to peat. As a result, peat is being ousted from the compost market. In North America, on the contrary, Canadian Sphagnum peat is invading the home gardeners market facilitated by assertive advertising by the peat industry.

Furthermore, since the end of the 1980's anti-peat campaigns of environmental groups in Europe, especially in the UK and Ireland, have persuaded the general public and users in the horticultural trade to decrease their use of Sphagnum peat and to use alternatives. The peat industry itself is increasingly developing and supplying these alternatives. Influenced by these societal developments the British government decided in February 2002 to have 90% of the peat currently used in professional horticulture and retail trade replaced by 2010. Consequently the British "Peat Producers Association" has renamed itself in 2002 to "Growing Media Association."

#### *Peat for horticultural growing media*

The most common current use of peat is for horticulture. The modern production of greenhouse and container crops involves the integrated management of water, fertilisers, pesticides, and growing media. Important requirements are uniformity, consistency, and predictability of the final product. Growing uniform, high-quality plants at very high productivity levels demands growing media with the best possible features. Small deviations from the optimum may cause considerable financial losses to greenhouse operation. Professional growers will therefore not necessarily buy the cheapest product, since quality is their primary concern.

Sphagnum peat has emerged as the foremost constituent of growing media because it retains large amounts of water, entraps large volumes of air, and holds large quantities of plant nutrients in readily available form. It has the advantage of a low pH and

nutrient content, which facilitate formulation of growing media for a wide range of application by adding nutrients and other materials. In Europe, approximately 95% of all growing media for the professional and amateur markets are peat-based.

In most countries of Western and Central Europe the stocks of slightly humified Sphagnum peat (white peat) are nearly depleted after centuries of agricultural use and peat extraction. To cover the demands, white peat is imported from Northern and Eastern 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 for pristine bogs in these areas grow. From the other side we see the already mentioned pressure from environmental groups and increasing requests for environmental certification of peat and peat products from retailers. An important environmental aspect of peat extraction is the carbon emissions associated with peat oxidation. As Reidar Petterson, the former president of the International Peat Society expressed it: "The Stone Age has not ended because of lack of stone. Similarly it will be with peat extraction."

An interesting and promising initiative to solve these problems is the cultivation of Sphagnum biomass. In Germany the peat industry, agricultural research institutes, and university scientists collaborate to develop a renewable raw material for high-quality horticultural media from fresh Sphagnum (Gaudig & Joosten 2002). In Canada the Canadian Sphagnum Peatmoss Association has in 2002 founded a professorial Industrial Chair of Canada for Peatland Management at the Université Laval (Quebec) with as one of the focal points „Sphagnum farming“ (IMCG Newsletter 2002/4).

#### *Urbanisation*

A further use of mires that globally leads to their destruction is urbanisation. This use relates to the location of mires and their capacity for providing space.

It is estimated that the 20,000 km<sup>2</sup> of water reservoirs in Canada have flooded 7,500 km<sup>2</sup> of wetlands and peatlands. Hydroelectric project development in Canada is therewith a greater threat to mires than all peat extraction, forestry operations, and urban development in that country combined. The increasing demands for "renewable" energy can hence lead to a direct destruction of virgin mires, as is also happening in Scandinavia. In Finland, for example, approximately 900 km<sup>2</sup> of peatland are covered by water reservoirs.

Vast areas of peatlands in Western Siberia and Alaska (Prudhoe Bay) have been destroyed by expanding infrastructure for oil exploration, exploitation, and transport. In Georgia (Caucasia) new harbours and railroads are presently constructed in internationally protected mires in order to carry oil from Azerbaijan to the Black Sea. Also opencast

mining leads to important losses of mires in several countries.

Substantial peatlands are located in coastal areas, where over 50% of the world's population lives. Major cities like Amsterdam and St. Petersburg are largely built on peat. Their location near to coastlines makes it tempting to convert mires and peatlands to provide infrastructure for towns and harbours, as can currently be observed in Southeast-Asia.

Worldwide all these types of utilisation cause a destruction of approximately 5.000 km<sup>2</sup> of mires annually. The area of mires is hence decreasing with 1% per year, i.e. with a rate 10 times faster than the expansion of mires during the Holocene.

Since 1800, the global area of mires and peatlands has been reduced significantly through human activities. Human pressures on peatlands are both direct, through drainage, land conversion, excavation, and inundation, and indirect, as a result of air pollution, water contamination, water removal, and infrastructure development. The international community is increasingly aware of the wide significance of mires and peatlands. Their wise use is crucial to the implementation of the United Nations Framework Convention on Climate Change (UNFCCC), the Ramsar Convention, the Convention on Biological Diversity (CBD), and other international instruments and agreements.

#### *Ramsar Convention*

The first global environmental convention, the Ramsar Convention, has since 1971 developed from a restricted "migrating birds-approach" to an integral ecosystem approach. The regulation functions of mires and peatlands as stores and sinks of carbon, nutrients, and water are increasingly recognised. Therewith the Ramsar Convention moves towards newer environmental conventions like the Bio-Diversity and Climate Conventions.

Although peatlands comprise over 50% of all wetlands on Earth, only a disproportional small part of them is protected as Ramsar Wetlands of International Importance. This discrepancy was first acknowledged in Brisbane in 1996 and eventually led to the adoption of important resolutions in Valencia in November 2002. In its Strategic Plan 2003-2008 the Ramsar Convention stresses the necessity of conservation and wise use of mires and peatlands. Furthermore the Valencia conference approved detailed Guidelines for Global Action on Peatlands (GGAP), which form a framework for national, regional, and international initiatives for peatland conservation, use, and management. The GGAP recommends a series of priority approaches and activities, that include:

- Establishing a global database of peatlands and mires with baseline information on the distribution, size, quality, ecological characteristics, and biological diversity of the peatland resource and

the carbon stored in them on the basis of globally standardised terminology and classification;

- Detecting changes and trends in the quantity and quality of the peatland resource by on-the-ground assessment and remote sensing techniques;
- Developing and promoting education, training, and public awareness programmes that explore the ecological, economic, and cultural functions and values of peatlands as well as their importance and relationship with people;
- Reviewing of national networks of peatland protected areas, including – where appropriate – implementing peatland restoration and rehabilitation, to guarantee that the full range of peatland biodiversity is adequately conserved;
- Developing and implementing peatland management guidelines and action plans for ensuring wise and sustainable peatland management on a regional and national scale;
- Establishing regional centres of expertise and research networks to improve understanding of the values and functions of the world's peatlands, to share knowledge and information, and to guarantee access to information and training facilities for those responsible for policy related to the wise use and exploitation of peatlands. Special opportunities should be sought for cooperative research into the role of peatlands in mitigating the impacts of global climate change;
- Stimulating international cooperation on research and technology transfer for peatland wise use.

Furthermore the Valencia conference adopted a resolution providing guidance for identifying and designating underrepresented wetland types, including peatlands, as Wetlands of International Importance, and a resolution stressing the relation between wetlands (incl. peatlands) and climate change.

For the funding of relevant initiatives the Global Peatland Initiative, a worldwide partnership of Wetlands International, Alterra, IUCN-Netherlands Committee, International Peat Society, and International Mire Conservation Group, was founded. A last important development is the completion of the guidelines for the Wise Use of mires and peatlands by the International Peat Society and the International Mire Conservation Group, of which a first copy was offered to the Ramsar Bureau on 20 November 2002 at Ramsar's COP8 in Valencia.

#### *Convention on Biological Diversity*

Mires and peatlands provide a wide range of wildlife habitats supporting important biological diversity, as is recently recognized by the Convention on Biological Diversity.

Mires have long remained the last wildernesses in many areas of the world. Their limited accessibility ("too wet to drive and too dry to swim") protected them against human intervention and has often turned mires into political, cultural, and language borders. This naturalness and virginity is an important motive for their conservation.

Mires are generally characterised by extreme conditions (high water level, scarcity of oxygen in the root layer, scarcity of nutrients, continuous peat accumulation and constantly rising water levels, extreme climate conditions, acidity). As a result they are in general relatively poor in species as compared with mineral soils in the same biographic region. Many peatland species are, however, strongly specialised and not found in other habitats.

Their inaccessibility and peacefulness have frequently made mires the last refuges of species that have been expelled from intensively used surroundings. In this manner the peat swamps of Borneo and Sumatra are the last refuges for orangutan (*Pongo pygmaeus pygmaeus*) in the midst of rigorously logged forests on mineral soils.

Various mire types develop sophisticated self-regulation mechanisms over time and acquire an exceptional resilience against climatic change. As a result such mires have characteristics similar to a living organism and are almost ideal examples of ecosystems. Related features are the inherent tendency of mires to develop complex surface patterning and ecosystem biodiversity (mire types).

The CBD-Ramsar 3rd Joint Work Plan (2002 – 2006) highlights the contribution of peatlands to global biodiversity. Furthermore the CBD, in close cooperation with Ramsar and the IUCN, is currently preparing criteria to identify components of inland water biological diversity that are important for conservation and sustainable use.

#### *Cultural heritage*

A special type of peatland biodiversity is their archive value. Mires constitute ecosystems with an incomplete cycling of material and a consequent continuous accumulation of organic material. They record their own history and that of their wide surroundings in systematic layers, making them particularly suited to the reconstruction of long-term human and environmental history. The data stored in the peat archives include macro-remains of peat-accumulating plants, pollen and spores of plants, including those from the wider surrounding areas, and all sorts of materials and substances that one way or another got into the mires, including archaeological objects. These important archives are safe as long as the peats remain water saturated. Also this value has in the meantime been recognized by the Ramsar Convention in its resolution on Cultural values of wetlands (2002). In its "Strategy and Statement of Intent for the Heritage Management of Wetlands" (2001) the European Archaeological Council has furthermore drawn attention to the importance of wetlands for the preservation of cultural features, and argued that there is much common ground in the wetland biodiversity and cultural heritage management of peatlands.

#### *Climate Change*

Peatlands are globally important as carbon stores and sinks. The present-day sequestering rate of carbon in

global mires is estimated to be  $0.04-0.07 \times 10^{15} \text{ g y}^{-1}$ . Because of the simultaneous emission of methane and nitrous oxide, however, pristine mires play an insignificant short term role with respect to global warming. Of much more importance is their role as carbon stores. Peatlands store more carbon than all forests of the world and constitute a global carbon pool of about  $412 \times 10^{15} \text{ g C}$  as compared to about  $694 \times 10^{15} \text{ g}$  in all global plant biomass,  $1,600 \times 10^{15} \text{ g}$  in all soils (including peat), and  $>700 \times 10^{15} \text{ g}$  in the atmosphere (Gorham 1995). The mobilisation of part of that store as a result of peat extraction, peatland agriculture, and forestry leads to annual carbon losses of  $0.1 - 0.2 \times 10^{15} \text{ g y}^{-1}$ . Consequently, the global peatlands have changed from a sink to a source of  $\text{CO}_2$  resulting in an annual reduction of the global peat carbon resource of 0.5 %. Catastrophic events, such as the presently recurring fires on drained peatland in SE Asia, may substantially increase these losses. In 1997 between 0.81 and  $2.57 \times 10^{15} \text{ g}$  of carbon were released to the atmosphere as a result of burning peat and vegetation in the peat swamps of Indonesia. This is equivalent to 13–40% of the mean annual global carbon emissions from fossil fuels, and has contributed greatly to the largest annual increase in atmospheric  $\text{CO}_2$  concentration detected since records began in 1957 (Page et al. 2002).

These aspects are highly relevant for the United Nations Framework Convention on Climate Change (UNFCCC) and the Kyoto-Protocol, which regulates concrete measures to slow down climate change. Until now, the Kyoto-Protocol only recognizes changes in land use related to agriculture and forestry, peatlands are not considered as such.

In the near future the largest dangers for mires may be in the so-called "perverse incentives" for carbon sequestration. The carbon balance in forestry drained boreal peatlands is rather complicated. During the first decennia after drainage carbon sequestration in the more rapidly growing plants (trees, dwarf shrubs) is larger than the carbon release from oxidation of the drained peat. This means that drained and afforested peatlands may be "better" for reducing the greenhouse problem than virgin mires. Depending on the use of the wood it takes decennia up to centuries until the continuing peat oxidation becomes more important than the increase in biomass and litter, because the latter tend to reach equilibrium on the long run. It is important that in the framework of the Kyoto-Protocol such short-term positive but long-term negative effects are not stimulated.

Therefore the IPS and the IMCG in their "Freising Statement" (November 1999, [www.imcg.net/docum/freising.htm](http://www.imcg.net/docum/freising.htm)) have requested the UNFCCC to take actions to

- Promote the maintenance of existing carbon stores in peatlands;
- Prevent the uncontrolled release of carbon from peatlands;

- Maintain the carbon sequestering role of pristine peatlands;
- Promote the restoration of disturbed peatlands for carbon sequestration;
- Reduce, by wise use, the emissions of greenhouse gases from peatlands currently being used;
- Promote further studies on carbon balance in peatlands and its role in global climate change.

Undoubtedly the changing climate will affect mires and their carbon sequestration and storage behaviour. Palaeo-ecological research shows that, as long as mires are in virgin conditions, they have a large resilience against climate change. This implies that climate change and biodiversity policy should aim at minimizing anthropogenic stress factors, especially drainage.

#### Conclusion

There is no longer any rationale for destructive exploitation of virgin mires. Peatland agriculture and forestry and peat extraction for energy are economically outdated, but locally still may have some socio-economic importance. Most mire and peatland losses in future are expected to result from infrastructure development (inundation for hydro-electricity, oil and gas exploitation, urbanisation). Indispensable exploitation, incl. peat extraction for growing media, can for now be concentrated on already degraded peatlands (800.000 km<sup>2</sup>!), but on the longer run sustainability requires the substitution of fossil peat by renewable resources.

In future the environmental functions of mires and peatlands must and will get more attention.

This also requires the rewetting of degraded peatlands, which enables the combination of conservational aims (reducing peat oxidation, increasing biodiversity) with sustainable exploitation of biomass (see table). All these developments lead to one conclusion: the Future of Peatlands is in Conservation!

Table: Biomass exploitation options for Central European degraded peatlands after rewetting.

	Water-trees	Water-reeds	Water-grasses	Water-mosses
Species	<i>Alnus glutinosa</i>	<i>Phragmites, Carex, Typha</i>	<i>Glyceria, Phalaris</i>	<i>Sphagnum</i>
Output	wood, veneer	energy, fabrics	food for ruminants	bryomass, peat
Yield (tdw ha <sup>-1</sup> a <sup>-1</sup> )	3 - 4	10 - 25	5 - 15	5 - 15
Harvest cycle	80 y	1 y (winter)	1 y (summer)	5 y moss 100 y peat
Ecology	eutrophic basic	eutrophic basic	polytrophic basic	oligotrophic acid
Peat balance	+ / 0	++ / 0	0	++ / 0

#### References

- Gaudig, G. & Joosten, H. 2002. Peat moss (*Sphagnum*) as a renewable resource – an alternative to *Sphagnum* peat in horticulture. In: Schmilewski, G. & Rochefort, L. (eds.): Peat in horticulture. Quality and environmental challenges. 117-125; Jyväskylä (International Peat Society)
- Gorham, E. 1995. The biogeochemistry of northern peatlands and its possible responses to global warming. In: Woodwell, G.M. & Mackenzie, F.T. (eds.): Biotic Feedbacks in the Global Climate System: Will the Warming Feed the Warming? 169-186; Oxford (Oxford University Press)
- Joosten, H. & Clarke, D. 2002. Wise use of mires and peatland – Background and principles including a framework for decision-making. 304 p.; (International Mire Conservation Group / International Peat Society)
- Page, S., Siegert, F., Rieley, J.O., Boehm, H.-D., Jaya, A. & Limin, S. 2002. The amount of carbon released from peat and forest fires in Indonesia during 1997. Nature 420: 61 – 65.

**The Global Peatland Initiative has a new website.  
Surf to**

**[www.globalpeatlands.net](http://www.globalpeatlands.net)**

**and see what they have to offer.**

## A high altitude mire in the Qomolangma National Nature Preserve, Tibet Autonomous Region

by Esther Blom

Until today, not many scientists and nature conservationists have had access to the Tibet Autonomous Region (TAR) of the People's Republic of China. Therefore, only little is known about the biodiversity of this region. This especially applies to the wetlands in TAR: although there are numerous lakes and marshes, they are only rarely described in literature. Therefore the Qomolangma Conservation Programme (QCP) decided to study a number of lakes and marshes in the Qomolangma National Nature Preserve (QNNP), a unique area of nature on the foot of the Mount Everest (Qomolangma in Tibetan). The QNNP is located in the south of TAR with a total area of around 35,000 km<sup>2</sup>. Five of the world's 14 peaks above 8000 m are found in this reserve. A special characteristic of this reserve is the giant variation in altitude and the related high diversity of ecosystems. Although in general biodiversity of Tibet is under great threat, in QNNP quite some interesting species are still to be found, like the snow leopard (*Uncia uncia*), the Tibetan brown bear (*Ursus arctos pruinosus*), the Tibetan wild ass (*Equus hemionus kiang*), and the black-necked crane (*Grus nigricollis*).



The aim of the wetland study (May-July 2003) was to gain insight in the socio-economic and ecological values of the wetlands in the reserve and to increase the awareness on their importance among the staff of the reserve and the NGO and among the local people. To reach these goals, wetlands training was given and four wetland areas were studied. All the selected areas were located in the dry steppes, on an altitude from 4300 to 4700 m a.s.l.

Three of the wetlands studied were lakes: Pelkutso, Garuwokyema, and Dingmutso. Pelkutso is a very large, alkaline, salt lake with the shape of a kidney. This holy lake is deep and contains only little vegetation. South of the lake four permanent inlets are found surrounded by marshy areas. Although the whole area has a very low population density, these marshes, as well as the grasslands somewhat more upslope, are visited by herders with their numerous sheep and yak resulting in overgrazed vegetation. Abundant mammals are the Wild ass, the Himalayan

marmot (*Marmota himalayana*), the Tibetan sandfox (*Vulpes ferrilata*), and the Tibetan gazelle (*Pantholops hodgsoni*). Also the snowleopard is supposed to reside in the hills surrounding the lake. Birds that were spotted were *Grus nigricollis* (also breeding), large groups of Pallas' gull (*Larus ichthyaetus*), common merganser (*Mergus merganser*), and, in a village nearby, the Eurasian eagle owl (*Bubo bubo*).

The other two lakes, Garuwokyema en Dingmutso, are shallow (max depth 30 cm) and both around 5 km<sup>2</sup>. They are highly alkaline, with a pH up to 10,3, but the lakes still contain fish and plants. Especially Dingmutso but also Garuwokyema contain high bird densities, among which the great crested grebe (*Podiceps cristatus*) and common terns (*Sterna hirundo*) which both nest on the isles of salt and plant debris. Bluesheep (*Pseudois nayaur*) are hunted and peat of the surrounding wet grasslands is collected as fuel and construction material. Around Garuwokyema a thick layer of salt can be found. Herders specifically visit this area to collect the salt as detergent for their clothes and to feed the salt to the cattle. Both lakes are shrinking. One lake that used to be close to Garuwokyema even disappeared completely.

Chhui Chhang, the fourth wetland under consideration, is a river floodplain consisting of several small permanent and temporary lakes and alkaline sedge marshes, with a total of around 40 km<sup>2</sup>. Several permanent and temporary rivers irrigate the area, as well as two mountain springs. The wetland is located in a bowl-shaped area, on the north side directly bordered by hills and on the south side (further away) by mountains over 8000 m high, which are the most important water supply of the marsh. Several migratory birds like the bar-headed goose (*Anser indicus*) and *Grus nigrocollis* use this area, the latter also for breeding. The area is very popular for grazing (mostly horses, which can endure the wet conditions). The peat that can be found in the very wet as well as the somewhat drier areas is collected by the local people and used as fuel as well as building material for the corrals.



Chhui Chhang

A most interesting type of wetland is found in the very wet area of the floodplain: here a floating fen can be found with a peat layer of around 35 cm, followed subsequently by a layer of water and ooze (mud with a very high organic material content). The most abundant plant species is *Hippuris vulgaris*. An interesting research question would be how this type of wetland (with a low decomposition rate) can find its origin in such dynamic conditions as a river floodplain and high pH values (8-9). Possible answers are the high altitude of this wetland (4300 m a.s.l.) and a consequent low oxygen content of the water, low temperature, and a lack of nutrients. Also the water supply by the underground mountain spring might contribute to a constant low nutrient and oxygen supply.

In summary, it can be stated that wetlands play an important role in the lives of the people in QNNP; the highest population density is mostly found around the lakes and river floodplains. The most important

function is the influence of the wetlands on the grass quality and quantity, thereby providing many opportunities for grazing. The high grazing pressure is also one of the most important threats to the flora and fauna around the wetlands. Other pressures on the wetlands are the digging of clay and peat and the shrinking of the lakes. 61 species of birds, among which many wetland dependent species, were identified during the visits to the wetlands. The most threatened species is the black-necked crane of which only 5000 to 6000 individuals are left worldwide. According to many herders interviewed, the bird density has severely decreased in the last years. A general inference is that research to high wetlands worldwide should have a high priority, before these valuable areas are unrestorably damaged, or even completely disappeared.

Esther Blom, The Mountain Institute  
(Currently working for the Small grants for Wetlands Programme, NC-IUCN, esther.blom@nciucn.nl)

### Mires and Climate Change: Salinity, Siberia, and The Gulf Stream

by John Couwenberg & Hans Joosten

The oceans are a global reservoir and redistribution agent for several important constituents of the Earth's climate system, among them heat, fresh water and carbon dioxide. Whereas these constituents are actively exchanged with the atmosphere, salt is a component that is approximately conserved in the ocean. The distribution of salinity in the ocean is widely measured, and can therefore be used to diagnose rates of surface freshwater fluxes, freshwater transport, and local ocean mixing – important components of climate dynamics. Comparison of salinities on a long transect (50° S to 60° N) through the western basins of the Atlantic Ocean between the 1950s and the 1990s revealed a systematic freshening at both poleward ends contrasted with large increases of salinity pervading the upper water column at low latitudes (Curry et al. 2003).

Shifts in the oceanic distribution of fresh and saline waters seem to be occurring worldwide in ways that suggest links to global warming and possible changes in the hydrologic cycle of the Earth. As a result of these shifts, the Gulf Stream may be “turned off” or reversed and thus plunge western Europe into the same climate conditions as Alaska. The Gulfstream relies on its extreme saltiness to sink off the coast of Norway and re-circulate back to the Caribbean in a continuous loop. If the saltiness is diluted, the water does not sink and the circulation system ceases (Toggweiler & Key 2001).

There are two things that dilute the Gulfstream water in the North Atlantic. One is the freshwater melting from Greenland. This has doubled (or more) during the last 5 years (Clarke 2002). The other fresh water source consists of the major Siberian rivers – like Lena, Ob, etc. With increased global warming encouraging both increased melting of Greenland as well as increased rainfall over Russia, the concern is that these two sources will dilute the Gulfstream sufficiently to halt it.



Lake-peatland landscape in Central-West Siberia  
(photo M. Succow)

The majority of the Russian rivers arise in peat-dominated landscapes. As these peatlands grow, they not only store Carbon but they also store water. To

prevent wild assumptions on the effect of these vast peatland areas on the Gulfstream, we carried out calculations on the quantities of water involved. To make calculations easier we used rounded off figures that, however, approach the real figures sufficiently to make reliable estimates.

The total amount of sweet (river) water flowing into the Arctic Ocean is 5000 cubic km per year. The total amount of sweet (river) water flowing into the Arctic Ocean through the major Siberian rivers amounts to 2000 cubic km per year. This amount may – depending on weather conditions – vary over the years with 15% (Shiklomanov 1999).

What is the effect of peat growth on the amount of water reaching the Arctic Ocean? The total area of peatlands in Siberia is 1.200.000 square km (Joosten 2004). With a yearly increase of 0,5 mm peat (a very generous estimate, because many peatlands are slowly accumulating permafrost peatlands) with close to 100% of water, this means an annual increase of the water storage in peatlands of 0,6 cubic km. This 0,6 cubic km is only 0,3 ‰ of the total amount of water flowing into the Arctic Ocean through the Siberian rivers or 2 ‰ of the variation in that amount. 0,6 cubic km is only 0,12 ‰ of the total amount of sweet (river) water flowing into the Arctic Ocean.

What is the effect of draining peatlands? With an estimated mean peat depth of 1,5 m, there is 1.800 cubic km of water stored in Siberian peatlands. It took some 10.000 years to accumulate this water. Successful drainage may perhaps remove 30% of the water of the total peat at most, i.e. 500 cubic km. (We departed from a maximum removal of 20 % of the water from the peat by gravitation drainage – keep in mind that “dry peat” in trade still contains 50% water and that this 50% is only reached by forced drying by evaporation – and an additional 10 % when the large

peatland lakes in the middle part of Western Siberia are drained.)

This 500 cubic km is 25% of the total amount of water flowing into the Arctic Ocean through the Siberian rivers per year and 10% of the total amount of sweet (river) water flowing into the Arctic Ocean. Even draining all Siberian peatlands would therefore “only” result in a change of 10% of the total amount of sweet (river) water flowing into the Arctic Ocean. This is within the variation of 15% of the annual river discharge. (Of course two “bads” may co-occur, causing a change of 25%). Moreover, all the drainage water has to reach the Arctic Ocean in the same year to arrive at this effect, which is virtually impossible.

We may conclude that the quantitative hydrological effects of Siberian peatlands on the water balance of the Arctic Ocean and therewith on the Gulf Stream are extremely small, if not negligible. This, however, does not preclude that there might be some effect in a qualitative way, by changing the inflow of humus particles into the Ocean. This is another question however...

Clarke, T. 2002. Record melt in Arctic and Greenland. Nature Science Update. <http://www.nature.com/nsu/021209/021209-2.html>

Curry, R., Dickson, B. & I. Yashayaev (2003) A change in the freshwater balance of the Atlantic Ocean over the past four decades. Nature 426, 826 – 829

Joosten, H. 2004. The IMCG global peatland database. [www.img.net](http://www.img.net)

Toggweiler, J.R. & R.M. Key. 2001. Ocean Circulation: Thermohaline circulation. In: J.R. Holton, J. Pyle and J.A. Curry, Encyclopedia of Atmospheric Sciences, Academic Press, London pp. 1549-1555.

Shiklomanov, I. A. 1999. World water resources and their use. <http://webworld.unesco.org/water/ihp/db/shiklomanov/summary/html/summary.html>

---

## REGISTER

**Please fill out the IMCG membership registration form.**

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

## Lake Sentarum National Park

Lake Sentarum National Park in the upper Kapuas Basin of West Kalimantan (Borneo) consists of a series of seasonal lakes, freshwater swamps, and forested peatlands – probably representing the only remaining intact peatland forest on Sunda Land. This Ramsar site is located in Kapuas Hulu District, in the upper Kapuas Basin of West Kalimantan Province, about 700 km away from the estuary of Kapuas River. The park has been listed as a Ramsar site since 1994. There are many endemic species found in the park, which also provides habitats for proboscis monkey and orang-utan.

The degradation of Danau Sentarum National Park has been occurring at an alarming rate. The underlying causes of this degradation are over-fishing, rampant illegal logging, and wildfires. It is urgent to manage the current impact of human activities on this important site.

Government policies play a significant role in accelerating the rate of destruction. The government of Kapuas Hulu District planned to convert the remaining natural forests within the park boundary. Their major aim is to attract as much as foreign investments, particularly from Malaysian businessmen and possibly other foreign agencies. It is clear that the plans would have socioeconomic development potentials but also damage the environmental health of the region.

The destruction of Danau Sentarum National Park must be stopped. Efforts to accomplish this objective have been taken. Yayasan Konservasi Borneo, together with collaborators, conducted a series of workshop in 2001 – 2003 to formulate appropriate solutions and action plans in order to protect the park. It is strongly realised that the management of Danau Sentarum National Park must address needs of local communities, and other relevant stakeholders. It is very important that local stakeholders, i.e. local communities and the district government have a larger influence on how to manage resources and protect the park from destruction.

In 2002, the Deklarasi Merpati was drawn up by local communities of Lake Sentarum National Park. In this declaration, these local communities have agreed to control their unwanted impact on the park. A booklet aimed at the general audience was published. It is the first booklet about the Lake Sentarum National Park written in Bahasa Indonesia. Many issues related to natural values and community based conservation management were presented on local television on World Wetlands Day 2002. Through workshops government support for wiser use of the resources of Lake Sentarum National Park was finally found. In 2003, the Head of Kapuas Hulu District declared

Kapuas Hulu “conservation district.” This political statement needs a lot of support and bears many practical consequences.

A workshop was held in Bogor on 15 October 2003 with participants from governments, NGOs, universities, and individual experts. The workshop highlighted two major issues.

The first issue is the management of the park. Under the present management scheme, the Department of Forestry in the central government has the authority to control the park. In reality, the park is administratively under the sovereignty of the district government. The decentralisation processes since the year 2000 have stimulated debates on how to manage national parks in Indonesia. This workshop strongly suggests forming a forum in order to facilitate communication, participation, and collaboration among stakeholders. The management of Danau Sentarum National Park must be fully designed to take into account all of the many stakeholders, including local communities, the District Government of Kapuas Hulu, NGOs, universities, research centres, the Departments of Forestry, Ocean and Fishery, and others.

The second issue dealt with how to select priority action plans that would help to combat anthropogenic impact on the park. These action plans were already formulated by local communities. The workshop has called stakeholders to implement action plans on fishery, forestry, tourism, education, and public health. In addition, action plans on customary laws have been formulated by local communities. It is expected that the Government of Kapuas Hulu will recognise the application of customary laws in Danau Sentarum National Park. It is realised that the present action plans are dominated by community concerns on how to fulfil economic needs. Natural values and functions of Danau Sentarum as an important national park are not properly acknowledged.

A report on the Workshop was published elaborating sectoral priority action plans. This report highlights the importance of collaborative network formation for the management of Danau Sentarum National Park. The workshop has opened an opportunity and drawn commitments from stakeholders to realise future collaborative work. Major stakeholders, like the Departments of Forestry, Ocean and Fishery, the Ministry of Environment, the Government of Kapuas Hulu District, NGOs, and local communities have shown a great interest and will to improve the management of Danau Sentarum.

<http://www.geocities.com/borneoconservancy>

## Controversial expressway threatens Biebrza Mire (Poland)

by Lesław Wolejko

The Biebrza Mire, situated in Northeastern Poland is one of the most valuable fen and marsh areas in central Europe. It is protected within the borders of the National Park and proposed as a future Natura 2000/Emerald Network-Site. WWF-Poland and local NGO's would like to draw attention to the fact that the area is endangered by a motorway, called the Via Baltica that will connect Warsaw with the Baltic States, eventually reaching to Helsinki. This expressway is part of the pan-European infrastructure and will be financed by the EU Pre-Accession Funds (PHARE, ISPA).

Originally, two variants for the construction of Via Baltica in Northeastern Poland were taken into consideration. A few years ago, the motorway was set to pass to the west of the Biebrza National Park via the town of Lomza. This concept is supported by nature protection organisations as the variant of minimal negative impact. However, following powerful lobbying from local political interest groups (at stake are 600 million Euro), the government agreed that the road should go via Białystok, the main town in the region. This proposition is strongly supported by the Ministry for Infrastructure and, with certain amendments, has been accepted by the Ministry of Environment. According to the opponents, the Białystok variant would cause dramatic long-term negative impacts on the wildlife in the entire bio-geographical region. Four Important Bird Areas (IBAs) will be threatened: the current plans foresee the Via Baltica to be routed through the Biebrza Mire and the Augustowska and Knyszynska primeval forests, also passing by the Narew river valley. Moreover, this variant is almost 30 km longer than the route via Lomza. The issue was addressed at the 23rd meeting of the Standing Committee of the Bern Convention in Strasbourg (1-5 December 2003), as reported by Dessi Krueger, (Euronature). It was brought forward, that the main effect and the risks of construction of the heavy traffic expressway would be:

- creation of major barriers to the dispersal of large mammals and other animals

- increasing fragmentation of populations and thus lowering their numbers and viability
- cutting migration corridors and riverine corridors
- increase in noise of passing vehicles and secondary developments (shops, petrol stations, land-use changes)
- environmental pollution (air, soil and groundwater)
- human interference leading to fauna mortality and transformation of plant communities

The main counter-arguments of the supporters of the Białystok variant concentrate on the objective needs of a technical upgrade of the already existing road passage through Biebrza, which is in a bad technical condition and thus creates a real danger to human lives and environmental quality (e.g. possible accidents with hazardous substances).

After the discussion in Strasbourg no long-term solution was found so far. It was, however, stated that "it is very important to stress on the role of the European Union, where no EU funding should be given for the motorway construction, if it is not compatible with the EC environmental legislation. That's why EU funds must be used in a way that is compatible with the EC environmental acquis."

Following several months of campaigning from environmental groups and the recommendations from the Bern Convention Standing Committee in Strasbourg, Polish authorities will be expected to complete a Strategic Environmental Assessment before deciding on the route for the controversial expressway.

For more information, take a look at:

- Krueger, D., Report from the session "Specific sites and populations" 23rd meeting of the Standing Committee of the Bern Convention, 1-5 December 2003, Strasbourg, Euronature.
- Ministry Of The Environment, The course-route of the Via Baltica Express Road, Press Release Warsaw, 21 May 2003.
- [http://www.wwf.pl/0312041454\\_newsen.php](http://www.wwf.pl/0312041454_newsen.php)



## Request for Proposals Society of Wetland Scientists' Ramsar Support Grant

The Society of Wetland Scientists is soliciting proposals for their Ramsar Support Grant Program. The grant program was established to advance Ramsar Convention objectives, including the selection, designation, management, and networking of Ramsar sites; and the promotion of Ramsar's Wise Use guidelines. Two to five projects are funded each year at a level of US \$5,000 on a competitive basis as reviewed by an evaluation committee.

Only applicants working on Ramsar-related activities in less-developed countries are eligible to receive grants under this program. Priority is given to projects being conducted in countries on the Organization for Economic Cooperation and Development, Development Assistance Committee

List of Aid Recipients. (The DAC List of Aid Recipients can be found on the internet at <[www.oecd.org](http://www.oecd.org)>).

Grant guidelines, an application form, and a description of previous grant awards can be found on the SWS web site at [www.sws.org/regional/international/ramsar.support.framework/](http://www.sws.org/regional/international/ramsar.support.framework/)

or you can request these materials from:

Eric Gilman, Society of Wetland Scientists, Ramsar Support Grant Program, 2718 Napua'a Place, Honolulu, HI 96822 USA

[ericgilman@earthlink.net](mailto:ericgilman@earthlink.net)

Applications must be received by 1 March 2004.

### The Bell of Christmas

Yeah, that's what it was like in those days when everything was different, when the farmers were still cutting their sods and the roughness, they rode it on their carts into the stable, and many still used sods for heating. In the heart of the mire, it wasn't easy to get, and also Kuunders had heard about it, about the bell that was lying there, in a pool a thousand metres under the ground.

- What kind of bell?

- Yes, it was a bell that sounded every Christmas night and wherever you stood in the mire, you could hear it everywhere.

In early years people had to bring the bell from the village to the other side where it would be inaugurated for Christmas. It happened during advent, like now, and bad weather. The bell was standing on a high cart. But the Devil was after it, the people who got the bell from the village weren't much good, they didn't have a clean conscious. Then the Devil could become the boss of the bell. Here then they got stuck in the moor and the axis of the cart broke. And so they lost the bell here in the mire and there it lies in the pit of a pool a thousand metres deep.

- What you're saying!

- You know that I had to go out a lot, also at night, come rain or come shine. Well, at Christmas one day with my own ears, I have heard that bell sound, with my own ears.

- You're pulling my leg!

- I'm telling you, Kuunders, that I've heard it with my own ears. Those people the Devil was after, they went almost mad when they heard that bell that deep under the ground. But they had to go after it, whether they wanted or not. They were never seen again. They were drowned in the moor. If you'd go and dig there and you'd be digging deep enough, you'd be finding bones there.

- That's an easy thing to say! Dig where? The bog is so incredibly vast.



*Art by Eve Zsoldos Nagy Illés*

Antoon Coolen, 1937. Kerstmis in de Kempen. (transl. J.C.)

## Regional News

### Global wetlands surveyed from space

ESA's (European Space Agency) new €1 million Globwetland project is producing satellite-derived and geo-referenced products including inventory maps and digital elevation models of wetlands and the surrounding catchment areas. These products will aid local and national authorities in fulfilling their Ramsar obligations, and should also function as a helpful tool for wetland managers and scientific researchers.

The Ramsar Convention on Wetlands stresses that targeted assessment and monitoring information is vital for ensuring effective management planning for wetlands, their hydrology and their catchments, but for wetland managers and decision-makers in many countries access to sound information about wetlands and how they are changing is often a critical gap.

By working with users at site and catchment scales the Globwetland project should contribute significantly to helping achieve effective management of these critical important ecosystems for biodiversity and human well-being.

With wetlands often made up of difficult and inaccessible terrain, satellites can help provide information on local topography, the types of wetland vegetation, land cover and use, and the dynamics of the local water cycle. In particular radar imagery of the type provided by ESA's Envisat is able to differentiate between dry and waterlogged surfaces, and so can provide multitemporal data on how given wetlands change seasonally.

Globwetland products are being provided for a wide range of terrain types to users across four continents: North and South America, Africa, Asia, and Europe, including European Russia. In Spain the Globwetland end-user is the government's Ministry of the Environment.

In Russia the Globwetland partner is the Ministry of Ecology and Land Use of Moscow region, and has a particular interest in using periodic satellite data to monitor peat fires and estimate how effective a new rewetting project is in preventing further outbreaks.

Wetlands comprise a third of the territory of the Russian Federation, the majority of it in the form of peatlands. Through much of the 20th century these areas were regarded as wasteland and drained for peat extraction - ending up as unproductive lands that do not contribute either economically or in terms of biodiversity, and also cause ecological problems such as dust storms and uncontrolled carbon dioxide emissions from smouldering peat fires.

In South Africa, Globwetland partner the Department of Environmental Affairs and Tourism (DEAT) seeks to use satellite data to help fulfil its Ramsar obligations for its existing three-site wetlands inventory. The Department also plans to map a

separate site, the Prince Edward Islands Special Nature Reserve, for the first time.

South Africa hopes to propose the offshore Reserve for designation as a new Ramsar Wetland of International Importance, but its uncharted nature is currently an obstacle to achieving this. This Southern Ocean site is also being nominated next year as a UNESCO World Heritage Site.

---

### News from Ramsar:

#### World Wetlands Day 2004 materials ready.

The second of February each year is World Wetlands Day, marking the date of the signing of the Convention on Wetlands on 2 February 1971. WWD was celebrated for the first time in 1997, and each year, government agencies, non-governmental organizations, and groups of citizens at all levels of the community have taken advantage of the opportunity to undertake actions aimed at raising public awareness of wetland values and benefits in general and the Ramsar Convention in particular. From 1997 to 2003, the Convention's Web site has posted reports from more than 80 countries of WWD activities of all sizes and shapes, and the Ramsar Bureau has provided materials free of charge to help planners get the greatest effect from their activities. This year the Bureau has prepared a poster on the theme of "From the mountains to the sea -- Wetlands at work for us," a new 3-fold leaflet "Working for Wetlands," and a new sticker, all of them in English, Français, and Español.

Contact the Ramsar Bureau for materials free of charge: <http://ramsar.org>

---

### News from Ramsar:

#### Uganda to host global wetlands conference

Uganda has signed a Memorandum of Understanding with the Ramsar Convention on Wetlands to host the 9th meeting of the Conference of the Parties to the Convention (COP9) in Kampala in late 2005. The offer, which is a highly significant commitment for Uganda, is the first time that the global Convention on Wetlands has come to Africa for its triennial meeting of its Parties, now numbering 138 countries. As the first country in Africa to develop a national wetland policy and with over 14 years of practical experience of learning from community based wetland management, Uganda has a leading role in showing how wise use and conservation of wetlands is achievable in the demanding context of Africa. Uganda has demonstrated how sustainable support for people's livelihoods can go hand in hand with

conservation of the biodiversity of these supremely rich areas.

Uganda joined the Convention in 1988, and has since then, in partnership with several Contracting Parties and international organisations, developed effective and transferable strategies and tools to enable other African countries to benefit from Uganda's experience.

This 2005 Uganda Conference fits well with the IMCG Action Plan, paying priority attention to African mires in the coming years.

---

### **News from Panama New Ramsar Site**

Panama has designated its fourth Ramsar Wetland of International Importance, the "Bahía de Panamá" (48,919 ha., 08°57'N 079°01'W) in the province of Panamá, effective 20 October 2003. Located to the east of Panama City on the Pacific coast, the site features broad intertidal mudflats divided by several estuaries, mangrove forests, swamp forests, and freshwater pools. It is renowned as an important stopover for migrating shorebirds: up to 360,000 individuals have been counted in one season and it is estimated that 1-2 million birds stop there during migration. The site harbours over 8% of the world population of Western Sandpipers *Calidris mauri* with records of over 280,000 birds, 20% of Semipalmated Plover *Charadrius semipalmatus*, and over 1% of the biogeographical populations of Semipalmated Sandpiper *Calidris pusilla*, Willet *Catoptrophorus semipalmatus*, Whimbrel *Numenius phaeopus*, Short-billed Dowitcher *Limnodromus griseus* and the Plover *Pluvialis squatarola*. Endangered species in the area include the Giant Anteater *Myrmecophaga tridactyla*, Baird's Tapir *Tapirus bairdii*, American Crocodile *Crocodylus acutus*, Loggerhead Turtle *Caretta caretta* and the endemic tree species *Annona spreguei*. Fishing and agriculture are the main human activities in the area, but due to its proximity to Panama City, pressures from urban development are increasing, as well as pollution from sewage waters discharged into the sea. Several research activities with shorebirds have taken place, and the site was recently declared an Important Bird Area. The Sociedad Audubon de Panamá assisted in the preparation of the technical data for the designation.

---

### **News from France Marais de Lavours**

The Marais de Lavours, the important peatland site at the transition of the Jura and the Alpes has opened a new internet site. If you want to know more about

this highly diverse area of wetlands and calcareous peatlands, browse to:

<http://www.reserve-lavours.com/flore.htm>

---

### **News from Ireland: Bog Burst could have been Avoided**

The bog burst at Derrybrien in the Slieve Aughty Mountains in County Galway, which occurred on 16 October, was almost certainly caused by the construction of a wind farm at this site. This disastrous event could have been avoided had the planning authorities taken on board the concerns of the Irish Peatland Conservation Council and local residents group in regard to this development on such a wet, fragile upland blanket bog.

IPCC are concerned that wind farms being built in other upland areas are threatening the future of mountain blanket bog habitat, which is a priority for conservation under the EU Habitats Directive.

Not only is the risk of bog bursts now a reality, but road construction over the bogs to service and install turbines only serve to attract other unsustainable activities in the blanket bogs such as dumping, turf cutting, drainage, and fire.

IPCC's wind energy policy supports the development of renewable energy provided this does not damage areas of conservation value.

In light of this recent bog burst, it seems clear that wind farm construction is not compatible with the protection of upland blanket bog. IPCC are very concerned about several other areas of upland blanket bog designated as proposed SACs, which have wind farms proposed on them, and we will double our efforts to prevent such developments taking place and ensure the survival of these sites.

The IPCC's policy statement on Wind Energy Developments on bogs can be viewed on [www.ipcc.ie](http://www.ipcc.ie).

---

### **News from Great Britain RSPB Unveils Fens Vision**

The plan to create 5,000 hectares of new wetlands was unveiled by the Royal Society for the Protection of Birds (RSPB). The proposed wetlands, stretching from Lincoln to Cambridge, would be equal to the size of Loch Ness. The RSPB hopes it will provide a lifeline for England's vanishing species. The scheme aims to build on the RSPB's work on fen projects in Cambridgeshire, Suffolk, Norfolk and Lincolnshire. The fens once covered 5,000 square kilometres in East Anglia.

### **News from Ukraine: Dikes Bulldozed in Danube Delta**

The removal of more than 6km of dikes on Tataru Island in the Danube Delta starts with restoring the natural flooding regime of this part of the Danube River. The bulldozers symbolize a new future for the

island, which is the first model site of the “A Vision for the Ukrainian Danube Delta” project, supported by WWF. The dikes were constructed across and around Tataru Island more than ten years ago, in order to drain around half the 738ha island for forestry and horticulture.

---

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

### **Ramsar Manual.**

(3rd edition, pre-publication version)

When the Ramsar Manual was first compiled by T. J. Davis and published in 1994, it was enthusiastically welcomed as an essential vade-mecum through the sometimes-bewildering world of Ramsar resolutions, guidelines, and terminology. A second edition was published in 1997, incorporating all of the institutional changes of the preceding three years and including all of the Convention’s major documents at that time. Then, in view of the subsequent publication of the 9-volume “Ramsar Toolkit” (The Ramsar Handbooks for the Wise Use of Wetlands), the Manual seemed less useful and was let go out of print. Since then, however, many people have argued that there is still a need for a brief, printed introduction to the Convention and its processes, and a new, updated third edition has now been prepared which will be published on CD-ROM in early 2004 as an adjunct to the new 14-volume 2nd edition of the Ramsar Handbooks series.

The pre-publication final English draft of this new Ramsar Manual is now available on the Ramsar Web site in HTML and PDF versions, and comments are invited as to improvements or additions that readers might like to see made to it. In early 2004, this text and its French and Spanish translations will be professionally laid out and included as an unnumbered supplement with the 14 volumes of the Ramsar Toolkit.

HTML: [http://ramsar.org/lib\\_manual2003\\_1.htm](http://ramsar.org/lib_manual2003_1.htm)

PDF: [http://ramsar.org/lib\\_manual2003.pdf](http://ramsar.org/lib_manual2003.pdf)

### **Aktiv für Moore**

With the slogan “Aktiv für Moore” (“Active for peatbogs”), the Austrian Federal Forest Agency (Oesterreichische Bundesforsten) and WWF Austria launched a programme in 2000 for the restoration of peatbogs. As in many temperate European countries, Austrian peatlands have been degraded to a large extent over the past century through excessive drainage, peat cutting, afforestation policies, tourist infrastructures (cable lifts, ski slopes, etc.), or intensive grazing. The Austrian peatland restoration programme started with a demonstration project in Ueberlingmoos, a bog drained and grazed since the

1920s. Small-scale dams were placed across all crucial drainage ditches to re-wet this valuable bog ecosystem. Since then, the lessons learnt have served for restoration measures applied to rehabilitate another 10 degraded peatbogs, and more activities are now planned to cover another 15 sites. The project partners have now produced a 24-page brochure that illustrates the variety of Austrian peatlands, the concrete works undertaken to rehabilitate their functions, and presents some of the key sites, as well as a map showing the distribution of peatlands in Austria and the 25 project sites. The brochure also refers to Ramsar’s guidelines for global action on peatlands. Our Standing Committee member Gerhard Sigmund briefly explains the implementation of the Convention in Austria and lists six Austrian peatlands that are foreseen for Ramsar designation in the near future. If you would like to receive a copy of this nicely illustrated brochure (in German) please contact the Ramsar Bureau ([europa@ramsar.org](mailto:europa@ramsar.org)).

### **Peatland Restoration Guide**

Second Edition Available. The Canadian Sphagnum Peat Moss Association in cooperation with the New Brunswick Department of Natural Sources and Energy has published the second edition of the “Peatlands Restoration Guide” by Francois Quinty and Line Rochefort. The publication can be ordered for CAD 150 from the Canadian Sphagnum Peat Moss Association at [cspma@peatmoss.com](mailto:cspma@peatmoss.com), the ISBN number is 0-9733016-0-0.

### **Handbook for the Assessment of Catchment Water Demand and Use**

This handbook is aimed at organisations with an interest in water resources management at a catchment level in southern Africa. The Handbook responds to the growing need to balance supply-side and demand-side approaches to managing scarce water resources in river basins. It recognises that an abundance of research and methodologies are available to assist planners and managers to assess water resource availability in a catchment yet little is available to assist in assessing water demand and use. The Handbook aims to fill this gap by bringing

together a range of methods, examples of their application, supporting information, and key references. The Handbook is available for no cost from HR Wallingford and can be downloaded from [www.hrwallingford.co.uk/projects/catchment\\_water\\_demand/index.html](http://www.hrwallingford.co.uk/projects/catchment_water_demand/index.html)

#### **Tourbières-INFOS no. 5 – December 2003.**

Bimonthly electronic newsletter of the French Pôle-relais Tourbières. To receive the newsletter, subscribe to: [tourbieres-infos@pole-tourbieres.org](mailto:tourbieres-infos@pole-tourbieres.org).

For more information: [www.pole-tourbieres.org](http://www.pole-tourbieres.org)

#### **Maisonneuve, J.L. (ed.) 2003. Marais de l'Erdre: Documents d'objectifs, Directive Habitats. 2003-2009. Site n°34 FR52 00624. CD-ROM.**

CD-Rom containing the full text (236 p.) in pdf format of the management plan of the Marais de l'Erdre, a 2565 ha large peatland/wetland complex in the Loire-Atlantique region (France). Made in the framework of Natura 2000. Contains a general description of the site, maps, an evaluation of the conservational values of European importance, an inventory of socio-economic activities and their impact on these values, a definition of management objectives, and a technical and financial evaluation. Downloadable from the website of EDEN (Entente pour le Développement de l'Erdre Navigable): <http://www.eden-sur-erdre.fr.st>

EDEN also publishes the bulletin La feuille de l'Erdre downloadable from the same website.

#### **Moreau, P.-A. 2002. Analyse écologique et patrimoniale des champignons supérieurs dans les tourbières des Alpes du Nord (françaises). PhD thesis, Laboratoire Dynamique des Ecosystèmes d'Altitude, Université de Savoie, 224 p.**

Study of Basidiomycetes and fleshy Ascomycetes in acid and basic peatlands in Isère and Savoie (Southeastern France), covering 609 species, including a list of vulnerable and endangered species for the peatlands of Western Europe and an index to calculate the mycological conservation values of peatlands. Downloadable from: [http://www.univ-savoie.fr/labos/ldea/Publi/Whole/These\\_PAM.pdf](http://www.univ-savoie.fr/labos/ldea/Publi/Whole/These_PAM.pdf)

#### **Jauhiainen, S. 2003. Holocene development of two boreal mires and the ecological effects of drainage and restoration. Academic dissertation. Faculty of Agriculture and Forestry of the University of Helsinki, 30 pp. and 5 articles.**

In order to restore drained peatlands successfully, it is necessary to know what factors have regulated their development and at what stage of succession the peatlands were at the time of management.

Study of a typical fen and a bog in southern Finland revealed that both peatlands initiated by paludification soon after the glacial retreat, around 9000 <sup>14</sup>C BP. Peat accumulated at different rates in the fen (average 0.28 mm yr<sup>-1</sup>) and in the bog (average 0.47 mm yr<sup>-1</sup>) reaching peat thicknesses of 230 cm and 430 cm, respectively. Carbon accumulation took place with average rates of 11.1 g m<sup>-2</sup> yr<sup>-1</sup> for the fen and 13.2 g m<sup>-2</sup> yr<sup>-1</sup> for the bog. The main trend in peat chemistry of both mires was the change from higher to lower nutrient levels with an increased acidity towards the surface peat. The main changes in chemostratigraphy occurred between 4600 and 4200 <sup>14</sup>C BP, simultaneously with the spread of *Picea abies* in the area.

Drainage during the 20th century caused greater changes at the fen site than at the bog site. Two new site types appeared at the fen site with species common to a forest floor. Continuously high moisture contents and low nutrient levels at the bog site prevented the formation of an economically valuable forest stand on the site. Also restoration caused stronger changes to the fen than to the bog due to the removal of the forest cover.

Restoration of both mires started successfully. The water table remained high and peatland vegetation spread on the areas in two to three years. However, it takes a much longer time period to restore a mire, and the restored state may not be the same as the pre-drainage one.

Available under: <http://ethesis.helsinki.fi/julkaisut/maa/mekol/vk/jauhiainen/holocene.pdf>

#### **Society for Ecological Restoration International Science & Policy Working Group. 2002. The SER Primer on Ecological Restoration. [www.ser.org](http://www.ser.org).**

This document provides a glossary of ecosystem and restoration terms and concepts. It can be read online at <http://www.ser.org/reading.php?pg=primer1> or be downloaded as a PDF from: [www.ser.org/Primer.pdf](http://www.ser.org/Primer.pdf)

#### **Matchutadze, I., 2003. Kolkheti mires. Tchaobi, Batumi, 40 pp. (in Georgian, English, and Russian).**

Full-colour booklet rich in information on the functions and values of the mires and peatlands of Kolkheti (Colchis) in Georgia. Describes in detail the conservation and environmental values of these special mires, including regulation of global and regional climate, flood control, and historical values, their biodiversity functions with many endemic and relict species, their production functions with much attention to their wide traditional uses, their scientific and aesthetic value, the anthropogenic impact, their conservational history, and the perspectives for the future.

For more information: Izolda Matchutadze: [izo.muho@gmx.net](mailto:izo.muho@gmx.net)

**Sulyok, J. 2003. Mires - National Ecological Network No. 3. Ministry of Environment and Water, Budapest.**

Mire losses are estimated to be more than 97% in Hungary, and by virtue of the law, all mires are nationally protected. This so-called ex lege protected status of mires is destined to provide enhanced protection for the existing fragments of mires and accompanied communities that are of outstanding value not only in biodiversity but also in historical, geographical, and biogeographical regard.

About one third of Hungarian mires are located already in protected areas: in national parks, landscape protection areas, nature reserves, or locally protected areas designated by municipals.

Considering the rapid loss of mires, a new approach will be needed for the conservation of mires that are small sized and in many times difficult to recognize. As a new and important instrument, the legislation will have to be modified. Where it is possible, the next step is to restore former or degraded mires.

The National Ecological Network series – published by the Authority for Nature Conservation of the Ministry of Environment and Water – aims to show the natural or near natural habitats of great value in Hungary that are on the same time integral elements of the National Ecological Network.

The booklet is available as a PDF from the IMCG website, follow the Publications link on the main page.

### **Used Stamps help Save the Bogs**

Don't throw away your old stamps - the Irish Peatland Conservation Council needs them! Why? - to help save bogs of course.

That's the message from the IPCC as we enter the Christmas Season and millions of cards are about to be posted to homes throughout the world.

IPCC turns used stamps into money by sorting and trimming them, and then making them up into packs for sale in IPCC's Enviro Shop or by selling them in bulk in Ireland and overseas to stamp dealers.

In 2003 IPCC raised more than 10,000 Euro from its stamp collection scheme.

There's no need to lift stamps off the paper, but if you have time to trim them leaving a 1cm or half inch margin of paper around the stamp, it helps IPCC.

If you can help, please put your used stamps into an envelope and send them to:  
IPCC, 119 Capel Street, Dublin 1.

So this year recycle all that waste paper rather than throwing it away after the holidays and do your bit for the environment!

For further information please contact  
Oscar Duggan, IPCC, 119 Capel Street,  
Dublin 1. Tel/Fax: 872 2397 or email [bogs@ipcc.ie](mailto:bogs@ipcc.ie) [www.ipcc.ie](http://www.ipcc.ie)

**VISIT THE IMCG HOMEPAGE AT**

**<http://www.imcg.net>**

## IMCG Main Board

### Chairman

Jan Sliva (Germany, Czech Republic)  
Technische Universitaet Muenchen, Department of Ecology, Chair of Vegetation Ecology;  
Am Hochanger 6,  
D-85350 Freising-Weihenstephan, Germany;  
Tel.: + 49(0)8161 713715 / Fax: 714143  
sliva@wzw.tum.de  
<http://www.weihenstephan.de/vegoek/index.html>

### Secretary General

Hans Joosten (Germany, Netherlands)  
Botanical Institute,  
Grimmerstr. 88,  
D-17487 Greifswald, Germany;  
Tel.: + 49 (0)3834 864128/ Fax: 864114  
joosten@uni-greifswald.de  
<http://www.uni-greifswald.de/~palaeo/>

### Treasurer

Philippe Julve (France)  
HERMINE Recherches sur les Milieux Naturels  
159 rue Sadi Carnot,  
59280 Armentières, France.  
Tel. + fax : + 33 (0)3 20 35 86 97  
philippe.julve@wanadoo.fr  
<http://perso.wanadoo.fr/philippe.julve/>

### Additional Executive Committee Member

Stuart Brooks (Scotland)  
Scottish Wildlife Trust, Cramond House, Kirk Cramond, Cramond Glebe Road,  
Edinburgh, EH4 6NS United Kingdom;  
Tel: +44 (0)131 312 4743 / Fax: 312 8705  
sbrooks@swt.org.uk  
<http://www.swt.org.uk/>

### Additional Executive Committee Member

Tatiana Minaeva (Russia)  
Wetlands International Russia Programme,  
Nikoloyamskaya Ulitsa, 19, strn.3,  
Moscow 109240 Russia;  
Tel.: + 7 095 7270939 / Fax: + 7 095 7270938  
tminaeva@wwf.ru  
<http://www.peatlands.ru/>

### Remaining Main Board Members

Olivia Bragg (UK)  
Geography Department, The University,  
Dundee DD1 4HN, UK;  
Tel: +44 (0)1382 345116 / Fax: +44 (0)1382 344434  
o.m.bragg@dundee.ac.uk  
Piet-Louis Grundling (South-Africa)  
IMCG Africa, Ihlaphosi Enviro Services cc,  
P.O. Box 912924, Silverton 0127, South Africa;  
Tel/Fax: + 27 12808 5342  
peatland@mweb.co.za

### Ronald Hofstetter MB (USA)

Department of Biology, Cox Science Center, Rm. 259, University of Miami,  
Coral Gables, FL 33124, USA;  
Tel.: + 1 305 2846500 / Fax: + 1 305 2843039  
rhofstet@umiami.ir.miami.edu

### Rodolfo Iturraspe (Tierra del Fuego, Argentina)

Alem 634, (9410) Ushuaia, Tierra del Fuego, Argentina;  
rodolfoiturraspe@yahoo.com  
iturraspe@tdfuego.com  
<http://www.geocities.com/riturraspe>

### Elena Lapshina (West-Siberia)

Department of Botany, Tomsk State University 36 Lenin Prospekt,  
Tomsk 634050 Russia;  
Tel.: + 7 3822 410690;  
edlapshina@hotmail.com, ed@uriit.ru

### Tapio Lindholm

Finnish Environment Intitute – Nature Unit  
P.O. Box 140  
Fin-00251 Helsinki, Finland  
Tel.: +358 9 4030 0729 / Fax: +358 9 4030 0791  
Tapio.Lindholm@ymparisto.fi

### Barry G. Warner (Canada)

University of Waterloo, Wetlands Research Centre,  
Environmental Study Building, Waterloo,  
Ontario N2L 3G1 Canada;  
Tel.: + 1 519 8884567 / Fax: +1 519 7460658;  
bwarner@watserv1.uwaterloo.ca  
<http://sciborg.uwaterloo.ca/biology/bwarner/>

### Jennie Whinam (Australia)

Nature Conservation Branch  
Dept of Primary Industries, Water & Environment  
GPO Box 44; Hobart TAS 7001  
Tel.: +61 3 62 336160 / Fax: +61 3 62 333477  
<http://www.parks.tas.gov.au/index.html>  
jennie.whinam@dpiwe.tas.gov.au

### Leslaw Wolejko (Poland)

Botany Dept., Akad. Rolnicza,  
ul. Slowackiego 17, 71-434 Szczecin, Poland;  
Tel.: +48 91 4250252  
botanika@agro.ar.szczecin.pl

### Meng Xianmin (China)

Mire research institute,  
College of City and Environmental Sciences  
Northeast Normal University  
No. 138, Renmind Street, Changchun 130021  
The People's Republic of China  
Tel/Fax: 0086 431 5268072  
mengxm371@nenu.edu.cn / mxm7949172@mail.jl.cn

## UPCOMING EVENTS

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

### **Integrating wetland hydrology and ecology in the UK**

*31 March 2004, London, United Kingdom*

For more information contact Mike Acreman  
mailto:man@ceh.ac.uk or take a look at:  
<http://www.imcg.net/docum/bes04.doc>

### **XII International Peat Congress: Wise Use of Peatlands**

*6-11 June 2004, Tampere, Finland*

More information at <http://www.suoseura.com/>

### **Peatland Conservation and Sustainable Use**

*7 - 9 July 2004, Lanzhou City, Gansu, China*

Please note the new dates!!!

For more information, surf to the IMCG homepage

### **The 7th INTECOL international wetlands conference**

*25 - 30 July 2004, Utrecht, The Netherlands*

For more information visit  
<http://www.bio.uu.nl/intecol/>

### **32nd International Geological Congress**

*20 - 28 August 2004, Florence, Italy*

The congress hosts a symposium entitled "Peatlands: basin evolution and depository of records on global environmental and climatic changes"

for more information have a look at  
<http://www.32igc.org/> or contact Peter Martini  
pmartini@uoguelph.ca

### **IMCG Field Symposium and General assembly in South Africa**

*12-26 September 2004*

For more information and registration form see previous IMCG Newsletter or surf to the IMCG Homepage.

## **Please do not forget!**

The important deadlines for the 14th IMCG Congress  
South Africa 10-27 September 2004:

Abstract submission: **15 January 2004**

Announcement of abstract acceptance: **February 2004**

Deadline early registration (reduced fees): **29 February 2004**

See Newsletter 2003/3 or our homepage for detailed information!

**VISIT THE IMCG HOMEPAGE AT**

**<http://www.imcg.net>**