



## IMCG Bulletin: July 2014

### Word from the Chair



[www.imcg.net](http://www.imcg.net)

Dear mire friends

We had very few contributions for the Bulletin in July and trust it is because all our members are enjoying the wonderful mire landscapes across the globe. My field work season here in South Africa was certainly full of surprises. I could not attend the Belarus meetings due to some family commitments – I was a bit disappointed but was very excited when our Swiss colleague, Edward Mitchell, contacted me in late June about his visit to South Africa with his family. It created the ideal opportunities for our families to spend some time together in some of our most scenic parks (and for Edward to introduce me to the secret world of Amoeba in *Sphagnum*)!! Read more about this in the Bulletin.

Next month the August issue of the IMCG Bulletin marks its 1 year anniversary. I trust we will have some wonderful Belarus contributions to celebrate it with!!

Contributions for the IMCG Bulletin can be sent to Piet-Louis Grundling - [peatland@mweb.co.za](mailto:peatland@mweb.co.za)

### Mires and Peat

*Mires and Peat* is the open-access peer reviewed journal of IMCG and the International Peat Society (IPS). Find it online at <http://mires-and-peat.net/>.

#### Articles recently published

Although new articles have not been reported since the April *Bulletin*, this is not because the editorial team has been idle. On the contrary, we have been very busy maintaining the publication rate of at least five articles per three months that is required to qualify for a *Web of Science* evaluation, which is the first step towards acquiring an Impact Factor.

New additions to the 2014 **Standard Volume 14** are:

- Impact of the spatial resolution of soils data on climate reporting for organic soils using the example of Germany (H. Fell *et al.*);
- The exposure of British peatlands to nitrogen deposition, 1900–2030 (R.J. Payne); and
- Testing peat humification analysis in an Australian context: identifying wet shifts in regional climate over the past 4000 years (M.A. Burrows *et al.*).

The 2013/14 **Special Volume 13** (*Reed as a Renewable Resource and Other Aspects of Paludiculture*) has continued, with publication of:

- The potential role of cattail-reinforced clay plaster in sustainable building (G. Georgiev *et al.*);
- Saving reed lands by giving economic value to reed (F.W. Croon); and
- Developing new-generation machinery for vegetation management on protected wetlands in Poland (A.P. Dubowski *et al.*).

One more article, expected in September or October, will complete this volume. Meanwhile, the 2014/15 **Special Volume 15** (*Mountain Peatlands*) has already opened and so far contains:

- The effect of drainage on organic matter accumulation and plant communities of high-altitude peatlands in the Colombian tropical Andes (J.C. Benavides);



- A geographical model for the altitudinal zonation of mire types in the uplands of western Europe: the example of Les Monts du Forez in eastern France (H. Cubizolle & G. Thebaud); and
- Peatlands of the Peruvian Puna ecoregion: types, characteristics and disturbance (F. Salvador *et al.*).

There has been lively interest in this Special Volume topic and there are more manuscripts already in hand and being drafted. But we can continue to accept new submissions for a few months yet, so if you have not already offered your manuscript, please get in touch with the Editor(-in-Chief), [o.m.bragg@dundee.ac.uk](mailto:o.m.bragg@dundee.ac.uk).

And of course the journal is always happy to receive your high-quality manuscripts on any topic relating to mires, peat and peatlands. See <http://mires-and-peat.net/> for a more detailed description of the scope of this unique journal for peat and peatland researchers.

### **Can you help the journal to grow even more?**

*Mires and Peat* is a free, open access and globally accessible research journal that is, nonetheless, produced to the highest academic standards. To achieve this, we rely heavily on voluntary 'spare-time' inputs from numerous members of the research community. To maintain the current publication rate, we now need more editors. Article editing can be immensely rewarding. It involves taking charge of a submitted manuscript and steering it at least part of the way through the process of peer review, revision and transformation into a publishable article. Assistant Editors commit to routinely taking on this role for a few (typically up to six) articles per year. Guest Editors commit to a specific Special Volume of the journal, often suggesting the topic and overseeing the submission of material, in addition to contributing to reviewing and editing of some of the articles eventually published. Associate Editors mostly review manuscripts on topics that are close to their own fields of expertise. If you have what it takes for any of these roles and would like to be part of the continuing growth of our journal, please volunteer now by contacting the Editor(-in-Chief), [o.m.bragg@dundee.ac.uk](mailto:o.m.bragg@dundee.ac.uk).

More specifically, if the current publication rate is to be maintained, it is already time to start planning and compiling our next Special Volume (for publication in 2015/16). As yet, there are no offers or suggestions. Do you have a topic to suggest? It could be a new 'hot topic' for peat and/or peatland research (e.g. Volumes 4, 13), perhaps based on a recent or upcoming conference (see also Volume 11); or devoted to a less-known peatland or peatland type (e.g. Volumes 9, 15); or a volume of research protocols following the hugely successful Volume 7; or something completely new for *Mires and Peat*. If so, we are eagerly waiting to hear from you via [o.m.bragg@dundee.ac.uk](mailto:o.m.bragg@dundee.ac.uk).

## **IMCG Symposium and Congress Belarus**

We heard good reports about the meetings in Belarus in July, and trust for a comprehensive feedback in the August issue. Herewith a small contribution from Bev Clarkson ([ClarksonB@landcareresearch.co.nz](mailto:ClarksonB@landcareresearch.co.nz)):

The 2014 IMCG Belarus symposium, which showcased many beautiful mire ecosystems, was an eye-opener for those of us from highly developed landscapes, such as in New Zealand, where only 10% of wetlands remain. It was heart-warming to experience intact landscape-scale natural sequences from river through mire through swamp forest to dry forest, all at the same site. There is also a focus on restoring mires after peat extraction, with large-scale re-wetting projects underway, as well as some innovative approaches to paludiculture, providing briquettes for fuel, and hay for agriculture. Belarus is to be congratulated for its progressive approach to protecting and restoring mire ecosystems, which are so important for biodiversity and ecosystem service benefits.



*Yelnya Mire, northern Belarus. A peat lake at the end of a recently constructed boardwalk. Photo Bev Clarkson*



*Participants enjoying good summer weather in Roznanskoe Boloto, Belarus. Photo: Hans Joosten*

## News received from IMCG Regions

### Australasia

Bev Clarkson

#### Fraser Island patterned fens

Patrick Moss (University of Queensland), a member of the 2013 IMCG pre-symposium trip to Fraser Island, has published a popular article on the patterned fens of the Great Sandy Region in Wildlife Australia [http://www.imcg.net/media/download\\_gallery/paper/moss\\_2014.pdf](http://www.imcg.net/media/download_gallery/paper/moss_2014.pdf). These are globally unique mires as they are the only known occurrence of patterned fens in the subtropics. The article includes some amazing photos of the fen complex at Moon Point/Puthoo, which was the focus of the IMCG pre-symposium field trip. It also outlines the scientific 'discovery' of the fen ecosystem by IMCG's Richard Lindsay in 1996, the process of how the fens were formed, and their historical development based on interpretation of peat cores. Angeline Bedolla presented an excellent summary of the 2013 IMCG investigations on hydrology and vegetation of the Puthoo mires at the 2014 IMCG Congress in Belarus.

#### Myanmar: new peatland ecosystems documented

Noor Azura Ahmad ([Azura@gec.org.my](mailto:Azura@gec.org.my))

Peatland surveys were undertaken between 15-27 February 2014 and involved detailed surveys of the area in and around Inle Lake in Shan State with sampling and peat depth assessments in more than 70 locations. A total of 9021 hectares of peatland was identified comprising three separate types:

1. Lake-margin peatlands with up to three metres thick peat along the shores of Inle Lake
2. Floating peatlands between 50cm to 1.5m thick floating on the surface of the lake. These are subdivided into two types: natural floating peatlands and modified floating peatlands used as floating gardens for the cultivation of tomatoes and other vegetables.
3. Calcareous spring mound peatland found in Taung Bo Gyi Village in the northwest corner of the Inle Lake wetland. This peatland has been formed over thousands of years around an active spring fed by calcium



rich groundwater. It has formed a mound of peat about 6.5 m thick and covers about three hectares. Mound spring peatlands are very rare and this is one of the first to be described in Asia.

The peatlands of Inle Lake play a key role in stabilizing water levels and improving water quality in the lake. The floating peatlands are also integral to the culture and economy of the local Intha Community who have cultivated the peat in floating gardens for hundreds of years. Although the floating vegetation around Inle Lake has been known for years it was not recognized that these were part of a much larger peatland system along the margins of the lake. The 9 021 ha of peatlands represents the largest single area identified during 18 months of surveys in different parts of Myanmar. In addition, 1 599 ha of peatlands were found in the nearby Heho Basin where peatlands are all cultivated and covered with soil eroded from nearby hills.

Inle Lake is internationally known for its beautiful environment, clear waters and unique customs of the Intha people who row their fishing boats with their legs and balance on one foot as they catch fish with nets and special traps. Inle Lake has been designated as an ASEAN Heritage Park and joins U Minh Thuong National Park in Viet Nam and Tasek Merimbun National Park in Brunei Darussalam as ASEAN Heritage Sites with significant peatlands.

The peatlands at Inle are home to a range of rare and threatened species including the Eastern Sarus Crane, Ferruginous Duck and a number of endemic fish species. During the survey freshwater crabs were observed breeding in burrows on the calcareous mound spring at Taung Bo Gyi.



*Tomatoes cultivated on floating peat island*



*Natural peatlands at Taung Bo Gyi Village, Inle Lake*

## South Africa

### ***Sphagnum* in the South-African savanna: an oxymoron?**

Edward Mitchell (Switzerland: [edward.mitchell@unine.ch](mailto:edward.mitchell@unine.ch))

Most readers of the IMCG Bulletin associate *Sphagnum* with northern peatlands where these mosses often cover almost 100% of the ground. In our minds, the chances of finding *Sphagnum* are logically higher in colder and wetter climates such as the temperate to boreal latitudes of Eurasia and North America. We know that *Sphagnum* also occurs in the Southern Hemisphere, such as the beautiful peatlands of Tierra del Fuego. But *Sphagnum* can also be found in other, climatically more exotic places such as sub-arid to arid landscapes. I was fortunate to be led to three of these unlikely locations in the South-African savanna with Piet-Louis Grundling.





These three “unlikely *Sphagnum* spots” are true peatlands. Two of them, located in Limpopo province at relatively high elevation (ca. 1500m) have a well-developed *Sphagnum* cover while the third on located in KwaZulu-Natal near the coast of the Indian Ocean had only “stressed” patches of *Sphagnum*. All sites were minerotrophic mires, not ombrotrophic systems.

Seeing *Sphagnum* in such unlikely locations raises many questions about the functioning of these peatlands and the limiting factors for the growth of *Sphagnum* mosses. My personal interest will be to observe the communities of eukaryotic microorganism associated to these mosses. I would be highly surprised if they contained no new species of testate amoebae at least... Stay tuned!



Collecting *Amoeba* amongst the giants: Edward Mitchell and Cobus Greyling (Game ranger in the BIG 5, Welgevonden Game Park). They had to skirt around 6 rhino to take this sample.



*Amoeba* from the genus *Quadrulella* collected at the Mutale Mire by Edward Mitchell: a new species?

## Wetland conservation on the back foot – Draining the Balamhlanga Wetland

Piet-Louis Grundling

A short report back on this disappointing event which has shocked the South African wetland community: The culprit in the draining of this wetland, Ezemvelo KwaZuluNatal Wildlife, has embarked on a rectification process in terms of the South African National Environmental Management Act. A team of wetland experts will be assessing the impacts on the system and will draft a wetland rehabilitation plan. This process will be officially reviewed by the IMCG chair and a survey will be conducted this week to determine if it is in fact a mire as well.



*Illegal draining of the Balamhlanga Wetland – two biofuel plants were recently approved close by*

This wetland is part of the larger Pongola floodplain in which the Ndumu Ramsar site is located. The draining of this system might have a direct impact on the Ramsar site.

Various South African NGO's are considering a petition to the Ramsar Secretariat to investigate the lack of proper conservation management of Ramsar and other wetlands within the conservation mandate of Ezemvelo KwaZuluNatal Wildlife.

## News from all over

Hans Joosten ([joosten@uni-greifswald.de](mailto:joosten@uni-greifswald.de))

### Europe

The European Commission prepared a new "Financing Natura 2000 Guidance Handbook" for the period 2014-2020. The document is designed to help EU Member States strengthen the uptake of EU funds for the management and conservation of their Natura 2000 sites in the new multiannual financial framework.

The Handbook analyses and describes opportunities for financing investments in Natura 2000 from different funds and instruments. It provides guidance on complementarities between different funds and policies which can be of benefit to the network. There are also practical tips on better integration of Natura 2000 in the operational programmes and some guidance on possible use of innovative financing instruments.

The Handbook has a two-part structure, with separate volumes for Part I and Part II:

- [Part I: Description of EU funding opportunities in 2014-2020](#)
- [Part II: Analysis of Natura 2000 management measures eligible for financing together with case studies](#)

### Factors influencing the re-vegetation of abandoned extracted peatlands in Estonia

Triin Triisberg-Uljas defended her PhD thesis "Factors influencing the re-vegetation of abandoned extracted peatlands in Estonia" in June. Full text of the theses can be found here:

<http://dspace.utlib.ee/dspace/handle/10062/40529>. Her articles can be found on the following websites:

Paper I: Triisberg, T., Paal, J., Karofeld, E. 2011. Re-vegetation of block-cut and milled peatlands: an Estonian example. *Mires and Peat*, 8, 1–14. <http://mires-and-peat.net/pages/volumes/map08/map0805.php>

Paper II: Triisberg, T., Karofeld, E., Liira, J., Orru, M., Ramst, R., Paal, J. 2013. Microtopography and the Properties of Residual Peat Are Convenient Indicators for Restoration Planning of Abandoned Extracted Peatlands. *Restoration Ecology*, 22, 1, 31–39. <http://onlinelibrary.wiley.com/doi/10.1111/rec.12030/abstract>



Paper III: Triisberg, T., Karofeld, E. & Paal, J. 2013. Factors affecting the revegetation of abandoned extracted peatlands in Estonia; a synthesis from field and greenhouse studies. *Estonian Journal of Ecology*, 62, 3, 192–211. [http://www.kirj.ee/22902/?tpl=1061&c\\_tpl=1064](http://www.kirj.ee/22902/?tpl=1061&c_tpl=1064)

Paper IV: Karu, H., Pensa, M., Rõõm, E.-I., Portsmouth, A. & Triisberg, T. 2014. Carbon fluxes in forested bog margins along a human impact gradient: could vegetation structure be used as an indicator of peat carbon emissions? *Wetlands Ecology and Management*, Doi: 10.1007/s11273-014-9339-5. <http://link.springer.com/article/10.1007/s11273-014-9339-5>

### **The world's largest palm oil players commit to funding High Carbon Stock Study**

Kuala Lumpur, 30 July 2014 - The world's largest palm oil players are jointly funding a comprehensive 12-month study that will:

- clearly define what constitutes a High Carbon Stock (HCS) forest;
- provide practical guidance on how to delineate HCS forests on the ground; and
- establish thresholds for HCS that take account of regional socio-economic conditions and opportunities.

The study will take a wide-ranging and practical approach, using robust scientific methods to estimate both above and below ground carbon stocks, and carbon emissions resulting from conversion to oil palm plantations. An inclusive, consultative approach will be adopted (working with governments and leading social and developmental economics experts) to establish guidelines and metrics for sustainable development.

Malaysian companies IOI Corporation Berhad, Kuala Lumpur Kepong Berhad and Sime Darby Plantation, Indonesia's Asian Agri and Musim Mas Group, and global agribusiness groups Cargill and Wilmar International, are funding the study and have committed to adopt the study's findings in all their operations and supply chains.

The HCS study is a key component of the Sustainable Palm Oil Manifesto, which was signed by oil palm growers Sime Darby Plantation, IOI Corporation Berhad, Kuala Lumpur Kepong Berhad, Musim Mas Group, and Asian Agri, as well as global palm oil trader Apical and global agribusiness group Cargill. The Manifesto includes a commitment to no deforestation, creating traceable and transparent supply chains, and protecting peat areas, while ensuring economic and social benefits for the local people and communities where oil palm is grown.

### **Upcoming Events**

Please visit the IMCG website ([www.imcg.net](http://www.imcg.net)) for announcements on a range of upcoming events <http://www.imcg.net/pages/events.php>

### **Recent scientific publications: peatland conservation**

Every month a wealth of scientific papers are published, many of which have relevance for peatland management and mire conservation. In this column we present the title and the URL of a selection of these papers. The selection does not aim at completeness and will inevitably be biased by the (wide...) interest of the compiler (Hans Joosten). If you want to share papers that you fear otherwise would be missed, please send the title and URL to [joosten@uni-greifswald.de](mailto:joosten@uni-greifswald.de)

1. Carbon accumulation of tropical peatlands over millennia: a modeling approach: <http://onlinelibrary.wiley.com/doi/10.1111/gcb.12672/abstract?campaign=wolacceptedarticle>



2. Carbon storage and potential methane production in the Hudson Bay Lowlands since mid-Holocene peat initiation: <http://www.nature.com/ncomms/2014/140611/ncomms5078/full/ncomms5078.html>
3. Characterization of structural disturbances in peats by X-ray CT-based density determinations: <http://onlinelibrary.wiley.com/doi/10.1111/ejss.12148/abstract?campaign=wolotoc>
4. A unique guild of Lepidoptera associated with the glacial relict populations of Labrador tea (*Ledum palustre* Linnaeus, 1753) in Central European peatlands (Insecta: Lepidoptera): xxx
5. Seasonal patterns in energy partitioning of two freshwater marsh ecosystems in the Florida Everglades: <http://onlinelibrary.wiley.com/doi/10.1002/2014JG002700/abstract?campaign=wolacceptedarticle>
6. Phenology and its role in carbon dioxide exchange processes in northern peatlands: <http://onlinelibrary.wiley.com/doi/10.1002/2014JG002666/abstract?campaign=wolacceptedarticle>
7. Development of bog-like vegetation during terrestrialization of polyhumic lakes in north-eastern Poland is not accompanied by ecosystem ombrotrophication: [http://link.springer.com/article/10.1007/s10750-013-1783-3?wt\\_mc=alerts.TOCjournals](http://link.springer.com/article/10.1007/s10750-013-1783-3?wt_mc=alerts.TOCjournals)
8. Diversity and fine-scale spatial genetic structure of *Cyperus papyrus* populations in Lake Naivasha (Kenya) using microsatellite markers: [http://link.springer.com/article/10.1007/s10750-013-1584-8?wt\\_mc=alerts.TOCjournals](http://link.springer.com/article/10.1007/s10750-013-1584-8?wt_mc=alerts.TOCjournals)
9. Vegetation exerts a greater control on litter decomposition than climate warming in peatlands: <http://www.esajournals.org/doi/abs/10.1890/14-0292.1>
10. A shift of thermokarst lakes from carbon sources to sinks during the Holocene epoch: <http://www.nature.com/nature/journal/v511/n7510/full/nature13560.html>
11. The importance of wetlands in the energy balance of an agricultural landscape: [http://link.springer.com/article/10.1007/s11273-013-9334-2?wt\\_mc=alerts.TOCjournals](http://link.springer.com/article/10.1007/s11273-013-9334-2?wt_mc=alerts.TOCjournals)
12. Spatial variability of methane emissions from Swiss alpine fens: [http://link.springer.com/article/10.1007/s11273-014-9338-6?wt\\_mc=alerts.TOCjournals](http://link.springer.com/article/10.1007/s11273-014-9338-6?wt_mc=alerts.TOCjournals)
13. Carbon fluxes in forested bog margins along a human impact gradient: could vegetation structure be used as an indicator of peat carbon emissions?: [http://link.springer.com/article/10.1007/s11273-014-9339-5?wt\\_mc=alerts.TOCjournals](http://link.springer.com/article/10.1007/s11273-014-9339-5?wt_mc=alerts.TOCjournals)
14. Soil carbon stocks and quality across intact and degraded alpine wetlands in Zoige, east Qinghai-Tibet Plateau: [http://link.springer.com/article/10.1007/s11273-014-9344-8?wt\\_mc=alerts.TOCjournals](http://link.springer.com/article/10.1007/s11273-014-9344-8?wt_mc=alerts.TOCjournals)
15. Spatiotemporal variations affect uptake of inorganic and organic nitrogen by dominant plant species in an alpine wetland: [http://link.springer.com/article/10.1007/s11104-014-2130-9?wt\\_mc=alerts.TOCjournals](http://link.springer.com/article/10.1007/s11104-014-2130-9?wt_mc=alerts.TOCjournals)
16. Ecosystem services from a degraded peatland of Central Kalimantan: implications for policy, planning, and management: <http://www.esajournals.org/doi/abs/10.1890/13-2014.1>
17. Investigating carbon flux variability in subtropical peat soils of the Everglades using hydrogeophysical methods: <http://onlinelibrary.wiley.com/doi/10.1002/2013JG002601/abstract?campaign=wolacceptedarticle>
18. Relative contributions of the logging, fiber, oil palm, and mining industries to forest loss in Indonesia: <http://onlinelibrary.wiley.com/doi/10.1111/conl.12103/abstract?sessionid=AD0D6B709C9CA29781D5414D129B3FE0.f01t03>
19. Incorporation of radiometric tracers in peat and implications for estimating accumulation rates: <http://www.sciencedirect.com/science/article/pii/S0048969714007682>
20. Composition of dissolved organic nitrogen in rivers associated with wetlands: <http://www.sciencedirect.com/science/article/pii/S0048969714007876>
21. A 30,000-year pollen record from Mire Kupena, Western Rhodopes Mountains (south Bulgaria): <http://www.sciencedirect.com/science/article/pii/S003466671400089X>
22. The effect of biomass harvesting on greenhouse gas emissions from a rewetted temperate fen: xxxx
23. Differential response of carbon fluxes to climate in three peatland ecosystems that vary in the presence and stability of permafrost: <http://onlinelibrary.wiley.com/doi/10.1002/2014JG002683/abstract?campaign=wolacceptedarticle>
24. Hydrological feedbacks in northern peatlands: <http://onlinelibrary.wiley.com/doi/10.1002/eco.1493/abstract>
25. Primary forest cover loss in Indonesia over 2000–2012: [http://www.nature.com/nclimate/journal/v4/n8/full/nclimate2277.html?WT.ec\\_id=NCLIMATE-201408](http://www.nature.com/nclimate/journal/v4/n8/full/nclimate2277.html?WT.ec_id=NCLIMATE-201408)
26. Emissions: Carbon cost will not stop oil-sands work: [http://www.nature.com/nature/journal/v511/n7511/full/511534a.html?WT.ec\\_id=NATURE-20140731](http://www.nature.com/nature/journal/v511/n7511/full/511534a.html?WT.ec_id=NATURE-20140731)





27. Combining indicator species and key environmental and management factors to predict restoration success:  
<http://www.sciencedirect.com/science/article/pii/S1470160X14002696>
28. Surface peat structure and chemistry in a tropical peat swamp forest:  
<http://link.springer.com/article/10.1007/s11104-014-2187-5>
29. Interactive biotic and abiotic regulators of soil carbon cycling: evidence from controlled climate experiments on peatland and boreal soils: <http://onlinelibrary.wiley.com/doi/10.1111/gcb.12585/abstract?campaign=woletoc>
30. *Mauritia flexuosa* palm swamp communities: natural or human-made? A palynological study of the Gran Sabana region (northern South America) within a neotropical context:  
<http://www.sciencedirect.com/science/article/pii/S027737911400225X>
31. Carbon dynamics of peatlands in China during the Holocene:  
<http://www.sciencedirect.com/science/article/pii/S0277379114002224>
32. Climate in the Western Cordillera of the Central Andes over the last 4300 years:  
<http://www.sciencedirect.com/science/article/pii/S0277379114002480>
33. Proceedings on enhancing forestry practices on peatlands in the ASEAN region:  
[Enhancing Sustainability of Forestry Practices on Peatlands](#)

Please send your contribution to the **IMCG Bulletin** by the 20<sup>th</sup> of each month:  
[peatland@mweb.co.za](mailto:peatland@mweb.co.za)