# IMCG Bulletin: September 2015

INTERNATIONAL MIRE CONSERVATION GROUP

www.imcg.net

## Word from the Chair

Dear mire friends

Mires are often located on the transition zones between terrestrial and aquatic ecosystems. This special habitat is obviously visible in the vegetation occurring in mires but less so (for the untrained eye) in the soil below the vegetation cover. Some might not regard this accumulated material, peat, as a soil. Is the role of peat as a soil type often underplayed in the soil sciences and related fields such as agriculture?

The United Nations launched the 2015 International Year of Soils on 5 December 2014 with World Soil Day to be celebrated every year on 5 December (http://www.un.org/apps/news/story.asp?NewsID=49520#.Vhk-Tel4TIU ). The FAO website does not directly refer to peat (http://www.fao.org/soils-2015/ ) but the role of soils in "the carbon cycle, storing and filtering water, and improving resilience to floods and droughts" is acknowledged. Actually the FAO has a pretty strong position on peatlands, as expressed in the 2014 submission to the Climate Convention:

"3. **Mitigation potential in peatlands**. Peatlands cover only three percent of the global land area, but they store 30 percent of the world's soil carbon. Drained peatlands (0.2 percent of the global land surface), cause disproportionally large GHG emissions as direct $CO_2$. According to FAOSTAT estimates, they contribute up to 1 Gigaton of GHG emissions per year through oxidation, which makes them the third largest emitter after crop and livestock agriculture and net forest conversion. One of the main drivers of peatland drainage is agriculture that converts natural peatlands to plantations and other agricultural land. Especially, tropical forested peatlands are being cleared and drained for palm oil and pulpwood production. Moreover, peatlands emit GHGs also in methane, from drainage waters and during the rewetting cycles, while another important source of emissions are given by fires, quite frequent on drained peatlands.

Conservation of the natural peatlands should be the priority. In case of utilisation, only responsible management practices should be implemented. An example of such practices is paludiculture. Paludiculture, biomass cultivation on wet and rewetted peatlands, presents opportunities for climate change mitigation as well as provides multiple environmental and socioeconomic benefits, including contributions to food security. Paludiculture is also an adaptation measure halting land subsidence, which leads to decrease in land loss, flood and fire frequency and salt water intrusion. Though paludiculture establishment requires only low to medium technical knowledge, the up-front investment costs of rewetting drained peatlands still remain a major barrier to its implementation. In the absence of financial incentives, unsustainable peat swamp utilisation with short-term economic benefits override long-term responsible land-use options. To overcome some of these barriers, existing mechanisms, including REDD+ and NAMA should be used as incentives for rewetting and responsible land use practices on drained peatlands. Capacity development, knowledge and experience sharing about responsible management options as well as improved methodologies for MRV are needed in key peatlands countries."
(http://unfccc.int/resource/docs/2014/smsn/igo/146.pdf)

Whereas the Cinderella Syndrome, highlighted by the IMCG at the Ramsar Convention in Australia in 1996 (COP6), certainly still exists, international organizations are increasingly giving peatlands the attention they deserve. The UNEP Yearbook 2014, following up on the soil carbon special of the 2012 Yearbook (http://www.unep.org/yearbook/2012/pdfs/UYB_2012_CH_2.pdf) contained a special feature about Securing Soil Carbon Benefits with ample attention to peatlands

(http://www.unep.org/yearbook/2014/PDF/chapt9.pdf). UNESCO SCOPE produced a major volume on soil carbon (http://www.soilcarbon.org.uk/volume71.html) in 2015, acknowledging the important role of peatlands.

So, let's use the remainder of this International Year of Soils to make our colleagues in the soil sciences and related fields aware of the role peat plays in the maintenance of various key ecosystems and in the livelihoods of many.

From 19 to 28 August 2016 our 2016 IMCG Bi-annual Field Symposium, Conference and General Assembly will take place in Malaysia. Please register as soon as possible: places are limited!

I dedicate this issue to Bev Clarkson and Hans Joosten for loyally contributing and editing the IMCG Bulletin over the past 24 months. Please send your contribution by 31 October 2015 to Piet-Louis Grundling at peatland@mweb.co.za.


*What has a royal family and the IMCG in common? Read more BELOW and visit http://www.wwf.org.uk/wwf_articles.cfm?unewsid=2329*

## IMCG Field Symposium- Malaysia and Brunei (Peninsular Malaysia and Borneo) August 2016

The field symposium will be held from 19 to 28 August 2016. The scientific congress and IMCG General Assembly will be held at the end of the Field Symposium.

The program will be taking participants across the variety of lowland peat swamp forest and highland peatlands in both Borneo and Peninsular Malaysia. These peatlands are some of the best developed tropical peat swamp forests globally with high biodiversity and unique characteristics. The visits will also give an opportunity to see ongoing conservation and rehabilitation measures as well as engagement of local communities. Due to logistic constraints, participants may be restricted to a maximum of 35-40 participants.

The cost will be approximately 1100 euros including internal flights, ground transport, food and accommodation (based on twin sharing basis). The symposium will start at Kuching, Sarawak and end in Cameron Highland, Peninsular Malaysia. Participants can book their return flight from Kuala Lumpur.

**Please block the date and make early registration to secure seats on internal flights and accommodation in small towns at: IMCG - Hans Joosten: joosten@uni-greifswald.de or GEC - Julia Lo: julialo@gec.org.my**

**Registration forms and more information under: http://www.imcg.net/pages/events/imcg2016.php**

## 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/ and in the *Thomson Master Journal List* (*Web of Science*).

Articles published in September:
**Physical and chemical properties of two Iranian peat types**
(M.A. Rahgozar and M. Saberian) [Volume 16 Article 07]
**The fungal consortium of *Andromeda polifolia* in bog habitats**
(N.V. Filippova and M.N. Thormann) [Volume 16, Article 06]
**Peatland carbon stores and fluxes in the Snowy Mountains, New South Wales, Australia**
(G.S. Hope and R.A. Nanson) [Volume 15, Article 11]

News about special volumes in preparation:

- ***Growing Sphagnum*** (both *in-situ* and *ex-situ*; for example, for peatland restoration and Sphagnum farming purposes): Manuscript offers are now in double figures and the volume editors (Line Rochefort and Stephan Glatzel) have set a window for submissions **FROM NOW until JUNE 2016** (we expect to open the volume in January 2016). If you have not yet offered your manuscript, please send an email to the Editor-in-Chief (o.m.bragg@dundee.ac.uk) stating your proposed title, author list and expected submission date. Contact Stephan Glatzel (stephan.glatzel@univie.ac.at) or Line Rochefort (Line.Rochefort@fsaa.ulaval.ca) if you want to discuss first.
- ***Greenhouse Gas fluxes in degraded and restored peatlands: Global perspectives***: Publish your work alongside invited papers from the Society for Ecological Restoration (SER) 6th World Conference, held in Manchester (UK) in August 2015 - this volume is **open to all**.
  Scope of the volume: a global overview of our current knowledge of GreenHouse Gas (GHG) dynamics along a land use gradient from degraded to restored/rewetted peatlands; studies that describe aquatic carbon losses, the development of country-specific emissions factors (e.g. for $CO_2$, $CH_4$, $N_2O$, DOC) and improved methods for determining activity data are particularly encouraged. Opening 2016. Contact David Wilson (david.wilson@earthymatters.ie) to discuss.
- ***Peatland strategies and action plans***: Again, we have several manuscript offers already, but more actual submissions as well as further offers will be welcome - contact Peter Jones (peter.s.jones@cyfoethnaturiolcymru.gov.uk) to discuss.

For our continuing series of standard volumes, we are always happy to receive new manuscripts from **all disciplines** on **any topic** relating to mires, peatlands and peat.
Please send **ALL SUBMISSIONS**, whether for a special volume or a standard volume, to the Editor-in-Chief o.m.bragg@dundee.ac.uk in the first instance, for:

- friendly editorial management by eminent peatland specialists (O.M. Bragg, R.S. Clymo, S.N.P. Glatzel, A.P. Grootjans, P.M. Jones and J.O. Rieley);
- minimal publication delays (the average turnaround time from submission to publication is currently less than 230 days); and
- free global exposure of your work in an ISI journal.

## News from our regions

**From Manchester to Mongolia via Minsk**
Tatiana Minayeva (Tatiana.Minayeva@wetlands.org)

***Society of Restoration 2015 conference***

I participated in the Society of Restoration 2015 conference in Manchester, England in August. It is of significance that peatland restoration contributions filled 8 full sessions within three conference days. I found the session on blanket bogs very exciting as well as the inspiring presentation of Richard Lindsay on global blanket mire restoration. All abstracts are available at: http://www.ser2015.org/abstracts

***Lindow Moss***

Associated with the congress were various excursions – two of them to peatlands. The unexpected surprise was the visit to Lindow Moss. We had the honour to visit this unique peatland where the "Lindow man" had been found. Lindow man is a world renowned example of a "peat body" found in a peatland. The body discovered in 1984 dates back 2000 years and is displayed in The British Museum. The Lindow man's death might have been a ritual killing. There are several more findings of possible victims of human sacrifice in this area. Details are available at: http://www.britishmuseum.org/explore/highlights/highlight_objects/pe_prb/l/lindow_man.aspx

The peatland and associated island are considered as sacred and druids have used these sites for traditional purposes. It is still a site used by present day druids (hopefully without fatal consequences….). Peat cutting has taken place here since the Middle Ages. And how do you think Lindlow man was discovered? Hand cutting? Surprise! It was during peat excavation with the wildest method – by bulldozer!!

And guess what is happening here now? Correct – peat 'cutting' using the wildest method – by bulldozer!! Should peat extraction be stopped for archaeological investigations? No? Recently the group *Lindow Moss Partnership* came up with the "New Vision" initiative to protect and manage the entire landscape. There are some negotiations in order to phase out peat extraction in the system – and the peat extraction company appears to be pushing for as much gain as possible. One of its proposals was to be allowed a subdivision for the building of several houses on the peatland (in the green belt of Manchester) after which they will stop extracting peat. It does not seem like a positive win-win situation for all parties involved.

*Déjà Vu*: I was so amazed, I thought I found myself somewhere in post-Soviet space….

There were two IMCG members at Lindow Moss: Beverley Clarkson and myself. We invited our guide Prof. John Handley, who is very concerned with the impacts of peat extraction, to submit information to the IMCG's threatened sites data base. We referred him to several British peatland conservation organisations and trust the plight of Lindow Moss will be taken up by IMCG members in Great Britain.

***Mires of Northern Europe: a tribute to Galina Elina***

The international Symposium "Mires of Northern Europe" took place in Petrozavodsk, Republic of Karelia, Russia from 2-5 September 2015. Karelia has a long tradition of providing excellent mire education cooperating closely with neighbouring Finland. Pyavchenko, Galkina, Lopatin, Elina, Yourkovskaya and Botch are some of the scientists who have been working there.

*Galina Elina , 2010*

For two decades this team was led by Galina Elina, who was succeeded by Oleg Kuznetsov when Galina retired. However, she was still actively participating in all mire related events and activities in the region. We all expected Galina to participate in the "Mires of Northern Europe" symposium, but unfortunately she passed away in August this year (two weeks before symposium). Tatiana Yourkovskaya made a presentation in honour of Galina Elina, about her contribution to science and her life.

*Tatiana Yourkovskaya, 2010*

During the symposium on 4 September Tatiana Yourkovskaya and Rauno Ruuhijarvi turned 85. They already celebrated their birthdays together in Petrozavodsk 5 years ago and in 2005 in Uchebnoe. This time Rauno could not participate in the meeting. Tapio Lindholm made a touching presentation in his honour. And of course Tatiana's birthday was celebrated several times during the symposium:
https://youtu.be/PqsG6Pf4xWM

*Rauno Ruuhijarvi and Tatiana Yourkovskaya on their 75th birthday celebrated together on the Uchebnoe Mire in Karelia, 1 September 2005*

***Minsk Mire Meetings***


From 24-25 September mire scientists from Belarus, Lithuania and Russia met in Minsk, Belarus. There was nice and warm exchange of results, thoughts and ideas between scientists. Proceedings have been published. E-version can be requested from organisers (seminar.wetlands@gmail.com).

During the excursion to the famous Yelnya Mire a lot of improvements in touristic facilities were observed.

*Tourists exploring Yelnya Mire*

***Mongolia Peatland Conservation***

Lastly, we also would like to mention that Wetlands International with a team of experts from Mongolia started, in the middle of September, the implementation of a project funded by the Asian Development Bank on the development of the National Peatland Conservation and Wise Use Action Plan for Mongolia. We will keep you informed on the developments.

## Southeast Asia

Noor Azura Ahmad (azura@gec.org.my) and Hans Joosten (joosten@uni-greifswald.de)

***Latest Haze Updates***

Here are some reports of the September events on the haze linked to the burning peatlands in southeast Asia:

25-Sep-2015 Long reach of haze
Photos from 3 nations affected by haze.

23-Sep-2015 Jokowi: Build Canal Dikes to Fight Peat Fire
TEMPO.CO, Banjarmasin - President Joko Widodo has instructed the construction of peatland canal dikes, locally known...

23-Sep-2015 Haze monitoring system to be upgraded in two years, says Wan Junaidi
Malaysia is expected to upgrade its existing haze monitoring system in the next two years.

22-Sep-2015 Haze remains unbeatable despite downpours, efforts to douse fires
Despite the declining intensity of smoke in some parts of Sumatra over the past two days, the overall air quality...

21-Sep-2015 Haze MOU to Be Signed by Year End
PJ: The bilateral MOU on Transboundary Haze Pollution between Indonesia and Malaysia will be signed by year end,...

21-Sep-2015 Indonesia should accept neighbours' help on haze: The Jakarta Post
In its editorial on Sept 20, 2015, the newspaper says it is strange that Jakarta has not taken up Singapore's help...

21-Sep-2015 Perubahan Tiupan Angin Punca Jerebu Kembali
Beberapa titik panas dikesan di Kelantan, Pahang, Johor.

21-Sep-2015 Syukur Hujan Jua
Jerebu di Kalimantan Barat sedikit reda selepas catat IPU paling bahaya.

21-Sep-2015 Hari Paling Indah

21-Sep-2015 Indonesia chokes as forest and peatland fires rip
The burning forests and peatlands of Indonesia are once again casting a pall of choking smoke across the region, in...

20-Sep-2015 Braving the Haze

20-Sep-2015 Bandar Utama Lumpuh

20-Sep-2015 Bantu Padam Kebakaran

18-Sep-2015 Jakarta again declines Singapore haze help
Indonesia has rejected help from Singapore to assist with firefighting efforts in fire-ravaged parts of Sumatra.

17-Sep-2015 Tough task for firefighters battling peatland blazes
Indonesian firefighters in Sumatra and Kalimantan have their work cut out for them in battling fires on peatland...

More news available at http://www.aseanpeat.net/newsmaster.cfm?&action=news&menuid=11.

A daily Regional Haze map is available on the ASEANpeat Homepage at www.aseanpeat.net

**Indonesia**
Asia Pulp & Paper builds huge US$2.6 billion pulp mill in South Sumatra:
http://www.straitstimes.com/asia/se-asia/upcoming-app-pulp-mill-will-guzzle-timber

Catastrophic peat fires possibly getting worse than in 1997/98:
http://www.channelnewsasia.com/news/asiapacific/indonesia-forest-fires/2165346.html
http://jakarta.coconuts.co/2015/10/01/dramatic-nasa-photo-reveals-full-extent-asias-choking-haze
http://news.mongabay.com/2015/10/maybe-thats-why-theres-so-many-fires-was-a-peat-swamp-illegitimately-stripped-of-protected-status-in-indonesia/
http://www.ctvnews.ca/health/kuala-lumpur-marathon-cancelled-as-city-turns-grey-with-smog-1.2593616
http://www.timeslive.co.za/world/2015/09/29/Indonesia-sends-thousands-to-fight-fires-makes-no-progress-against-hazardous-haze
http://www.asianscientist.com/2015/10/features/scientific-facts-haze/
http://www.straitstimes.com/asia/se-asia/thick-haze-grounds-firefighting-copters
http://www.gettyimages.de/detail/nachrichtenfoto/burnt-stumps-is-seen-as-fire-burns-peatland-and-fields-nachrichtenfoto/491123138

Canals being built to stop peat fires may be counterproductive by extra drainage:
http://www.straitstimes.com/asia/se-asia/jokowi-orders-study-on-waterways-to-prevent-peatland-fires
http://www.straitstimes.com/asia/jokowi-orders-canal-network-to-be-built-immediately

http://www.straitstimes.com/asia/se-asia/indonesian-soldiers-digging-canals-in-fire-prone-kalimantan
http://setkab.go.id/en/peatland-on-fire-president-joko-widodo-enterprises-must-build-embung/
http://en.tempo.co/read/news/2015/10/03/206706085/Walhi-Canals-Not-Effective-for-Peatland-Fire-in-C-Kalimantan

Indonesia's peat forests turn into flooded wastelands by subsidence and fire consequent on drainage: http://www.straitstimes.com/asia/se-asia/its-not-just-haze-forest-clearing-leads-to-subsidence

Peatland ecoregion to be established in South Sumatra:
http://www.antaranews.com/en/news/100771/s-ssumatras-peatlands-attracting-global-attention-governor

Indonesia eyes development of peatland for more food supply:
http://news.xinhuanet.com/english/2015-09/23/c_134653133.htm

**Belarus**
ClimateEast workshop on challenges in addressing climate change in peatlands (with presentations in pdf):
http://www.climaeast.eu/events/regional-workshop-peatlands

## Peatland conservation relevant papers

Collected by Hans Joosten: joosten@uni-greifswald.de

1. Rewetting former agricultural peatlands: Topsoil removal as a prerequisite to avoid strong nutrient and greenhouse gas emissions: http://www.sciencedirect.com/science/article/pii/S0925857415301361
2. Mapping peat layer properties with multi-coil offset electromagnetic induction and laser scanning elevation data: http://www.sciencedirect.com/science/article/pii/S0016706115300252
3. Rewetting of drained boreal spruce swamp forests results in rapid recovery of Sphagnum production: http://onlinelibrary.wiley.com/doi/10.1111/1365-2664.12474/abstract?campaign=woletoc
4. Soil organic matter characterization of temperate peatland soil with FTIR-spectroscopy: effects of mire type and drainage intensity: http://onlinelibrary.wiley.com/doi/10.1111/ejss.12279/abstract?campaign=woletoc
5. Effects of land use on greenhouse gas fluxes and soil properties of wetland catchments in the Prairie Pothole Region of North America: http://www.sciencedirect.com/science/article/pii/S0048969715303429
6. Greenhouse gas balance of a semi-natural peatbog in northern Scotland: http://iopscience.iop.org/article/10.1088/1748-9326/10/9/094019/meta;jsessionid=2EABEB0220C9AC0EFB6E1FC00AFC69B7.c1
7. Long-term reindeer grazing limits warming-induced increases in CO2 released by tundra heath soil: potential role of soil C quality: http://iopscience.iop.org/article/10.1088/1748-9326/10/9/094020/meta
8. Rapid recovery of invertebrate communities after ecological restoration of boreal mires: http://onlinelibrary.wiley.com/doi/10.1111/rec.12237/abstract?campaign=woletoc
9. Methane emission bursts from permafrost environments during autumn freeze-in: New insights from ground-penetrating radar: http://onlinelibrary.wiley.com/doi/10.1002/2015GL065034/abstract?campaign=woletoc
10. Derivation of greenhouse gas emission factors for peatlands managed for extraction in the Republic of Ireland and the United Kingdom: http://www.biogeosciences.net/12/5291/2015/bg-12-5291-2015.pdf
11. Effects of wetland plants on denitrification rates: a meta-analysis: http://www.esajournals.org/doi/abs/10.1890/14-1525.1
12. Permafrost warming in a subarctic peatland – Which meteorological controls are most important?: http://onlinelibrary.wiley.com/doi/10.1002/ppp.1862/abstract?campaign=wolearlyview
13. Characterization of diffusivity-based oxygen transport in Arctic organic soil: http://onlinelibrary.wiley.com/doi/10.1111/ejss.12293/abstract?campaign=wolearlyview

14. Distributions of carbon and nitrogen isotopes in Scotland's topsoil: a national-scale study: http://onlinelibrary.wiley.com/doi/10.1111/ejss.12289/abstract?campaign=wolearlyview
15. Comparing carbon storage of Siberian tundra and taiga permafrost ecosystems at very high spatial resolution: http://onlinelibrary.wiley.com/doi/10.1002/2015JG002999/abstract?campaign=wolacceptedarticle
16. Recovery of target bryophytes in floating rich fens after 25 yr of inundation by base-rich surface water with lower nutrient contents: http://onlinelibrary.wiley.com/doi/10.1111/avsc.12197/abstract?campaign=wolearlyview
17. Climate, vegetation, and human influences on late-Holocene fire regimes in the Sanjiang plain, northeastern China: http://www.sciencedirect.com/science/article/pii/S0031018215003958
18. Ecological and biogeochemical change in an early Paleogene peat-forming environment: Linking biomarkers and palynology: http://www.sciencedirect.com/science/article/pii/S0031018215004265
19. The importance of pH and sand substrate in the revegetation of saline non-waterlogged peat fields: http://www.gret-perg.ulaval.ca/uploads/tx_centrerecherche/Montemayor_et_al_2015_JEnvManage_01.pdf
20. Impacts of donor-peat management practices on the functional characteristics of a constructed fen: http://www.sciencedirect.com/science/article/pii/S0925857415001482
21. Climate changes, lead pollution and soil erosion in south Greenland over the past 700 years: http://www.sciencedirect.com/science/article/pii/S0033589415000599
22. Peatland evolution and associated environmental changes in central China over the past 40,000 years: http://www.sciencedirect.com/science/article/pii/S0033589415000630
23. Mapping soil carbon stocks across Scotland using a neural network model: http://www.sciencedirect.com/science/article/pii/S0016706115300628
24. The impact of Indonesian peatland degradation on downstream marine ecosystems and the global carbon cycle: http://onlinelibrary.wiley.com/doi/10.1111/gcb.13108/abstract
25. Rising methane emissions from northern wetlands associated with sea ice decline: http://onlinelibrary.wiley.com/doi/10.1002/2015GL065013/abstract?campaign=woletoc
26. How hydrology determines seasonal and interannual variations in water table depth, surface energy exchange and water stress in a tropical peatland: Modelling vs. measurements: http://onlinelibrary.wiley.com/doi/10.1002/2015JG003005/abstract?campaign=wolacceptedarticle
27. Differential responses of two wetland graminoids to high ammonium at different pH values: http://onlinelibrary.wiley.com/doi/10.1111/plb.12398/abstract
28. Holocene environmental changes in southern Kamchatka, Far Eastern Russia, inferred from a pollen and testate amoebae peat succession record: http://www.sciencedirect.com/science/article/pii/S0921818115300448
29. Fighting carbon loss of degraded peatlands by jump-starting ecosystem functioning with ecological restoration: http://www.sciencedirect.com/science/article/pii/S0048969715304356
30. Late Pleistocene montane vegetation and climate history from the Dajiuhu Basin in the western Hubei Province of Central China: http://www.sciencedirect.com/science/article/pii/S0034666715001384
31. Mapping peat layer properties with multi-coil offset electromagnetic induction and laser scanning elevation data: http://www.sciencedirect.com/science/article/pii/S0016706115300252
32. One-dimensional expression to calculate specific yield for shallow groundwater systems with microrelief: http://onlinelibrary.wiley.com/doi/10.1002/hyp.10637/abstract
33. Long-term agricultural drainage stimulates $CH_4$ emissions from ditches through increased substrate availability in a boreal peatland: http://www.sciencedirect.com/science/article/pii/S0167880915300645
34. Dry and humid phases in the highlands of southern Brazil during the last 34,000 years, and their influence on the paleoenvironments of the region: http://www.sciencedirect.com/science/article/pii/S1040618214009252
35. Drivers of aquatic macroinvertebrate richness in spring fens in relation to habitat specialization and dispersal mode: http://onlinelibrary.wiley.com/doi/10.1111/jbi.12569/abstract?campaign=woletoc