IMCG Bulletin: July 2015

INTERNATIONAL MIRE CONSERVATION GROUP

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Word from the Chair

Dear mire friends

It seems we have an early spring in southern Africa after a mild winter and I understand from Jan Sliva (currently visiting Kruger National Park, South Africa with me) that Germany (and I guess the rest of Europe?) is experiencing a very hot and dry summer. A drier and hotter climate certainly impacts mires in various regions.

We are still battling peat fires in various parts of South Africa – battling to get authorities to fight these fires as forestry companies and state departments still argue what's the cause: climate change/drought; water abstraction, or thirsty Eucalyptus and Pine plantations. We trust the change in season will bring much needed rain in both hemispheres!

We are proud to announce that the IMCG is having its 2016 IMCG Bi-annual Field Symposium, Conference and General Assembly in Malaysia (the 2nd half of August 2016) – see the arrangements in the 1st announcement on page 4. Read more on some Main Board stalwarts in this issue, announcements on *Mires and Peat* publications and news on mire research.

What is new about mires and peatlands in your part of the world? The Bulletin is 2 years old in August: if you have any suggestions in improving it please send your suggestions to Piet-Louis Grundling - peatland@mweb.co.za.

Do you know these mountains? Read more on page 4.

Get to know your Main Board members - Featuring:

Eric Muzhedzi

Eric is Provincial Coordinator in the North West Province of the Working for Wetlands Programme, South Africa where he coordinates the rehabilitation of various peatlands and wetlands. Eric was employed by the programme in 2000 as a student project manager after completing his BSc in limnology at the University of Venda. He joined the IMCG after the 2004 IMCG field symposium to South Africa. One of the highlights of his career was participating in the East African wetland management course in Uganda. The IMCG field trips to Estonia-Poland (2010) and the Andes (2012) made a huge impression on him and he enjoyed learning from fellow IMCG friends.

Eric has vast experience in wetland rehabilitation; especially with a focus on erosion control. Working for Wetland emphasizes poverty alleviation, job creation and capacity building and Eric finds this very rewarding as he has a heart for people.

He is happily married with Peggy and 2 of their 3 children are presently following in their father's footsteps studying at the University of Venda: both microbiology – but he is still hoping a mire link will be made…….

Jan Sliva

Jan started his academic career in landscape ecology in the Czech Republic and is presently a research associate at the Chair of Restoration Ecology, Technical University of München, Germany. He is, since 2006, a member of the external monitoring team of the for LIFE – nature projects of the European Commission

He has 25 years' experience in peatlands focusing on restoration of commercially cutover bogs in Bavaria in the early 1990s and expanded his interests amongst others to mire ecology and botany. He has travelled widely and studied mires globally in all continents except Antarctica; and he has a soft spot for southern Africa.

Jan has been a member of the IMCG since 1991, and was Chair from 2000 to 2004. He is currently member of the Executive Committee and responsible for maintaining the membership database.

Hans Joosten

Hans, IMCG Secretary-General since 2000, studied biology in the Netherlands with majors in Geobotany (Nijmegen), Aquatic Ecology (Wageningen/Leersum) and Historical Plant Geography (Utrecht). After his doctoral (drs.) exams he worked as a docent at the Open University Heerlen, as scientific policy officer at the Dutch State Forestry Service and the Ministry of Agriculture, Nature Conservation and Fisheries, and as a scientific researcher at University Utrecht (Laboratory of Palaeobotany and Palynology).

From 1996 on, Hans leads the Department of Peatland Studies and Palaeoecology in the Institute of Botany and Landscape Ecology of Greifswald University (Germany), since 2002 as associate professor, since 2008 as Extraordinary Professor. In 2010 he received an Honorary Doctorate of the University of Batumi (Georgia) for his achievements in studying and protecting the peatlands of Colchis.

Hans Joosten and his research group study peatlands in an integrative way at the crossroads of palaeo-ecology (palynology, macrofossil analysis, geochemistry), ecology (bio indicators, peat formation and accumulation), landscape ecology (eco-hydrology, mire and landscape development, human impact, climate change, greenhouse gases), nature conservation (classification, biodiversity, restoration), and wise use (peatland ecosystem services, paludiculture). The group has research projects in several European countries as well as in Georgia (Transcaucasia), Russia (Yakutia, West-Siberia), China (Tibet, Altai, Jilin), Vietnam, Indonesia, Brunei, Iran, Senegal/Mauretania, and Tierra del Fuego (Argentina).

First Announcement

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

The field symposium will be held from 19 August 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.

The Preliminary program:

Date	Place	Note
Day 1, Fri 19 August 2016 (Afternoon)	Departure to Maludam National Park (by road and by boat)	overnight at Maludam National Park
Day 2, Sat 20 August	Excursion to Maludam National Park, at 43,147 ha the largest remaining lowland contiguous peat swamp forest in Sarawak	back to and overnight at Kuching
Day 3, Sun 21 August	Depart to Miri by Air (early morning); excursion to Belait Peat Swamp Forest, one of best preserved peatlands in the region(by road)	Overnight in Brunei
Day 4, Mon 22 August	Depart to Lawas by road Late morning: Excursion to *Dacrydium* and *Casuarina* Swamp Forest (Sarawak) After lunch: Travel to Long Pasia (Sabah)	Overnight at Long Pasia village

Day 5, Tue 23 August	Excursion to Long Pasia swamp forest, a lower montane peatland with high plant and bird diversity	Overnight at Long Pasia village
Day 6, Wed 24 August	Depart to Kota Kinabalu by road Excursion to Klias Peat Swamp Forest visitor centre and boardwalk (Sabah)	Overnight at Kota Kinabalu
Day 7, Thur 25 August	Depart to Kuala Lumpur by Air (morning) Excursion to Raja Musa Forest Reserve, visiting a community-based peatland forest rehabilitation program	Overnight at Homestay Sg Sireh
Day 8, Fri 26 August	Excursion to the 81,000ha large lowland North Selangor Peat Swamp Forest, jungle trekking and boat ride along Tengi River, a natural black-water river; community livelihood Afternoon: Depart to Cameron Highland	Overnight at Cameron Highland
Day 9, Sat 27 August	Seminar / General Assembly	Overnight at Cameron Highland
Day 10, Sun 28 August	Excursion to upper montane mossy peat forest at Gunung Berinchang (high biodiversity)	Overnight at Cameron Highland
Day 11, Mon 29 August	Depart to KL International Airport	

Figure 1: Cameron Highlands

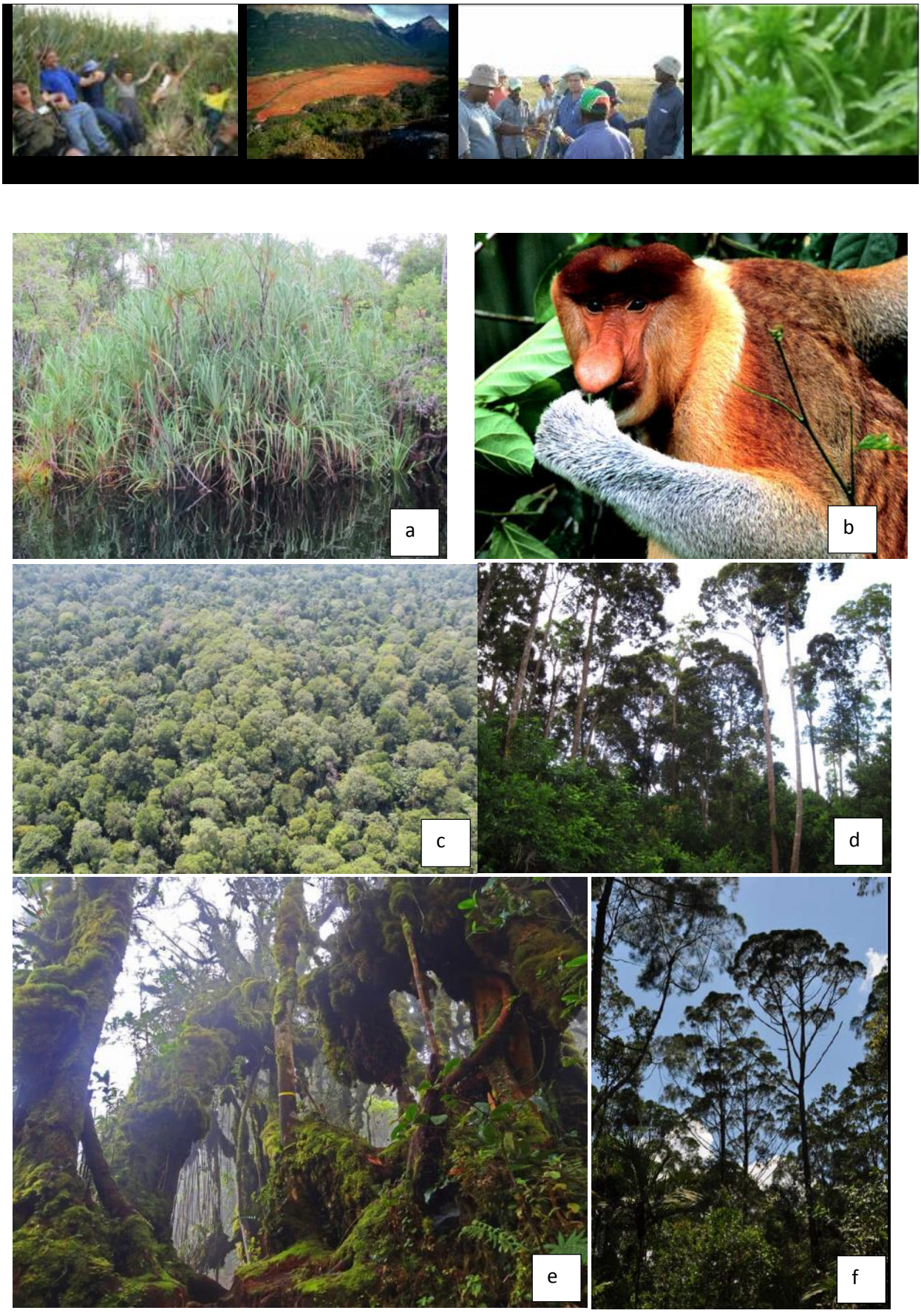


Figure 2: a) peat swamp in Maludam National Park, b) Proboscis monkey in Maludam National Park, c) aerial view of North Selangor peat swamp forest, d) Klias peat swamp forest, e) mossy forest at Cameron Highland and f) Dacrydium and Casuarina swamp forest.

Figure 3: Rehabilitation efforts at North Selangor Peat Swamp Forest -a) canal blocking, b) transferring seedlings, c) planting tree at degraded peat area, d): Black water river in Raja Musa Forest Reserve, Selangor

The Field Symposium is being organized by IMCG and Global Environment Centre (GEC) in conjunction with the respective state governments in Malaysia and Brunei. For more information and expressions of interest in participation -please contact

IMCG - Hans Joosten: joosten@uni-greifswald.de

GEC - Julia Lo: julialo@gec.org.my

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).

The latest new articles (published in July) are:
Why are there few gas bubbles in deep peat in British raised and blanket peat bogs? (R.S. Clymo) [Volume 16, Article 05]
In search of spring mires in Namibia: the Waterberg area revisited
(A.P. Grootjans, A.J.M. Jansen, P.C. de Hullu, H. Joosten, A. Bootsma and P-L. Grundling) [Volume 15, Article 10]

We are now receiving promised manuscripts and new offers of material for THREE special volumes:

- Peatland Strategies and Action Plans: submit to the Editor-in-Chief (see below) or contact Peter Jones (peter.s.jones@cyfoethnaturiolcymru.gov.uk) to discuss.
- Growing Sphagnum (both in-situ and ex-situ; for example, for peatland restoration and Sphagnum farming purposes): contact the Editor-in-Chief or Stephan Glatzel (stephan.glatzel@univie.ac.at).
- Greenhouse Gas fluxes in degraded and restored peatlands: Global perspectives. Based on invited papers from the Society for Ecological Restoration (SER) 6th World Conference, to be held in Manchester (UK) next month, but open to all. This volume will aim to provide 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 from these peatlands, the development of country specific emissions factors (e.g. CO_2, CH_4, N_2O, DOC) and improved methods for determining activity data are particularly encouraged. Contact Stephan Glatzel or David Wilson (david.wilson@earthymatters.ie) to discuss.

For our continuing series of standard volumes, we are always happy to receive new manuscripts on any topic relating to mires, peatlands and peat. Please send these to the Editor-in-Chief o.m.bragg@dundee.ac.uk, 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.

Research initiatives

Request for help to identify blanket bogs

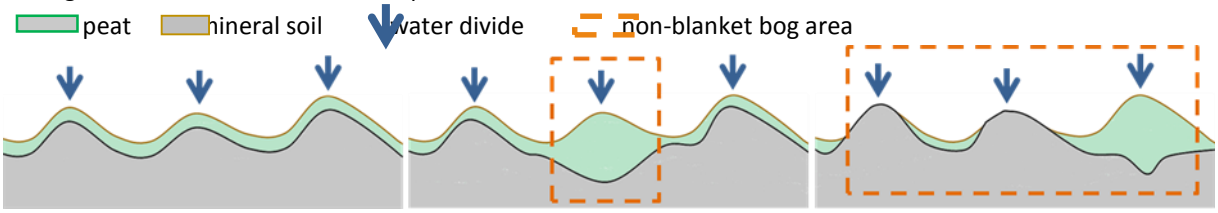
Scottish Natural Heritage (SNH) pursues the nomination of the Flow Country of Caithness and Sutherland (Scotland, Great Britain) as a World Heritage Site. In this context SNH has asked IMCG – as an international expert organisation - to assess the international importance of the Flow Country as a blanket bog landscape.

The first step in this process is to define what is exactly meant with blanket bog. After extensive consultation of experts and the literature, we use the following **definitions**:

A **blanket bog landscape** (BBL) is a landscape[1] that is characterized[2] by blanket bog.
Blanket bog is ombrotrophic[3] peatland[4], of which the surface relief[5] largely follows the underlying mineral soil.

	Explanation	Obligatory indicator	Comments
1	A landscape is a characteristic part of the terrestrial Earth surface with a coherent appearance of abiotic, biotic and cultural elements		For our purpose we define a landscape as appearing on a kilometer-wide scale 'Coherent' implies regularity in the appearance of the single elements (as in a mosaic)
2	Other elements may occur, but are not dominant on a landscape scale	Blanket bog is in area the most important feature	A BBL may include areas that are not blanket bog, but these elements individually cover less area than blanket bog
3	Only supplied with water and nutrients by the atmosphere	Absence of mineral soil water indicators among mosses and superficially rooting vascular plants; Peat cover also on local water divides	
4	A peatland is an area with a naturally accumulated peat layer at the surface	Peat thickness > 30 cm	
	Peat is sedentarily accumulated material consisting of at least 30% (dry mass) of dead organic material	With macroscopically visible plant remains	The criterion that the peat must cover slopes (see below) implies that at least on the slopes the peat must be of limited permeability and rather strongly decomposed and compact up to close to the surface
5	I.e. the peatland surface on a landscape scale, not the microrelief	Peat present on mineral slopes and hill tops. At least some water divides in the ombrotrophic peatland reflect the underlying mineral soil water divide	Peat should also (be able to) occur on slopes outside depressions in the mineral landscape, i.e. cover the landscape like a blanket. This criterion combined with the criterion of ombrotrophy implies that blanket bog can only be found in areas with a large and regular atmospheric water supply and/or little atmospheric water losses by evapotranspiration.

The figures below illustrate the concept:



Left: *A blanket bog landscape in which the peatlands' surface relief completely follows the underlying mineral soil and the peatland water divides reflect the underlying mineral soil water divides .* ***Centre:*** *A blanket bog landscape dominated by blanket bogs but with a raised bog included. The raised bog water divide does not reflect the underlying mineral soil water divide.* ***Right:*** *Although the surface relief is again the same as in the other pictures, this landscape is not a blanket bog landscape. No blanket bogs are present because no mineral hill top is covered by (at least 30 cm of) peat and the peatland water divide does not reflect the water divide in the underlying mineral soil.*

The second step is the worldwide **identification** of blanket bog landscapes. For this we rely on **YOU!** If you know of any area that fits our definition, please contact us with preliminary indication of location and size.

We will then come back to you with concrete questions related to the **quality** of the landscape. All these data will be evaluated to arrive at an assessment of the importance of the Flow Country in global perspective. After acceptance by the Main Board of IMCG the report will be submitted as an official IMCG report to SNH.

Please help us to make a high quality report. We count on you! Send your data (and possible questions) preferably until August 31 to:
Isabell Szallies: isabell.sza@gmx.de
Hans Joosten: joosten@uni-greifswald.de

The Flow Country, Scotland (Hans Joosten 21-04-2015)

Sustainable management and use of water

James Paul: james.paul@rspb.org.uk

A four year project that is focusing on the sustainable management and use of water across peatlands is currently being developed by a number of organisations from the UK, Belgium, the Netherlands and Germany. It will work towards new agreements on how a balance between the many changing demands on water can be maintained in the long-term, focusing on mutual benefits for the environment, economy and society. It will generate and share knowledge across the partnership that will inform the development and trialling of new methods for protecting and restoring peatlands, including bogs, fens and shallow peat lakes. The project will engage with key stakeholders to encourage a sense of ownership of the landscape and reduce conflicts between different sectors, jointly developing solutions that will win long-term backing and benefit the wider population. All learning from the project will be widely disseminated. The project has been submitted as an expression of interest to the EU Interreg North Sea Region funding programme with feedback expected in autumn 2015. For more information, please contact James Paul at: james.paul@rspb.org.uk

Mire research update: New Zealand

Bev Clarkson: Clarksonb@landcareresearch.co.nz

A summary of the recent research in the New Zealand government-funded wetland programme is now available. Most of the research is on mires, including advances in quantifying carbon stocks and balances, and restoration outcomes. The first national assessment of carbon stocks in New Zealand freshwater wetlands estimated around 114 Mt C for organic soils (average peat depth 3.9 m) and 23 Mt C for mineral soils (upper 0.3 m). However, 146 000 ha of peatlands have been converted to agriculture in the last 175 years, potentially contributing between 0.5 and 2 Mt CO_2 per year to the atmosphere. On a more positive note, ecosystem carbon balance research at Kopuatai bog (10 200 ha) revealed the year-round growing conditions and evergreen restiad-dominated vegetation lead to a net carbon uptake from the atmosphere for around 9 months of each year. The carbon balance of the bog appears fairly resilient to the impacts of drought, which is good news, given predictions of more frequent and severe droughts. Restoration research on plant and invertebrate responses to control of invasive grey willow (*Salix cinerea*) showed the invertebrate compositional changes are strongly linked to the changes in plant communities. Invasive plant control can promote the re-establishment of invertebrate communities typical of natural mires; however, their long-term sustainability relies on preventing grey willow re-invasions and re-establishing the native plant habitat.

Southeast Asia

Noor Azura Ahmad (azura@gec.org.my)

17th Meeting of the Technical Working Group, ASEAN Sub-Regional Ministerial Steering Committee (MSC) on Transboundary Haze Pollution in Jakarta discusses progress on peatlands.

This meeting took place on 28 July 2015 in Jakarta, Indonesia, attended by Environment Ministers and senior officials from Brunei Darussalam, Indonesia, Malaysia, Singapore, and Thailand. Issues that were discussed include an overview of the current haze situation and ASEAN weather forecast, especially a dry season

between June to October 2015; an update of forest fires in each member state, developments in the real-time hotspot detection system and monitoring of fire incidences in ASEAN member states using Haze Management System (HMS); development of effective firefighting capacity & training on regional forest fire management.

The Ministers commended the significant achievements made through the local, national and regional activities under the 5-year ASEAN Peatland Forests Project (APFP), which was funded by Global Environment Facility (2009-2014) through International Fund for Agricultural Development (IFAD) and implemented by ASEAN Member States in coordination with ASEAN Secretariat and Global Environment Centre. The Ministers also commended the good progress being made under the EU-supported SEApeat Project (2011-2015), which has supplemented support for the APFP and expanded activities to the northern ASEAN Member States. Together, APFP and SEApeat projects have demonstrated the value of integrated peatland management and engagement of local communities and the private sector as well as enhancing peatland fire prevention and warning.

The Meeting noted the substantive progress of the development of the successor ASEAN Programme on Sustainable Management of Peatland Ecosystems – APSMPE (2014-2020), and the encouraging response and support from ASEAN dialogue and development partners. The Ministers renewed their commitment to implement this regional Programme through ASEAN mechanisms, enhanced national level efforts and multi-stakeholder partnership. Thailand also offered to host a workshop for developing a Roadmap for Implementation of the Transboundary Haze Pollution Control which is planned for 2016.

Ministers from the southern ASEAN Member States involved in environmental management : From left: Datuk Seri G. Palanivel (Malaysia), HE Pehin Dato Haji Suyoi Haji Osman (Brunei Darussalam), Dr. Ir. Siti Nurbaya (Indonesia), General Dapong Ratanasuwan (Thailand), Dr. Vivian Balakrishnan (Singapore), and Mr Larry Maramis (Director for Cross-Sectoral Cooperation, ASEAN Secretariat)

News snippets from all over

Wind farm plan in Flow Country (Scotland) rejected:
http://www.scotsman.com/news/environment/controversial-highlands-wind-farm-plan-rejected-1-3829360

The quantification of the subsidence and flooding impacts of drainage for oil palm plantations in Sarawak, Malaysia:
https://www.deltares.nl/en/projects/flooding-projections-for-oil-palm-plantations-in-the-rajang-delta-peatlands-sarawak-malaysia/

Crane numbers in Rwanda decline (*whilst habitat including peatlands for power are being destroyed - ed*):
http://www.rdb.rw/news-pages/news-details/article/call-for-protection-of-the-grey-crowned-crane.html

Peatland destruction: Horse cull under consideration - Kosciuszko National Park -
http://www.abc.net.au/news/2015-05-23/cull-being-considered-to-combat-growing-number-of-brumbies/6490458

Peatland conservation relevant papers

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

1. Reed cut, habitat diversity and productivity in wetlands:
   http://www.sciencedirect.com/science/article/pii/S1476945X15000331
2. Groundwater salinisation on atoll islands after storm-surge flooding: modelling the influence of central topographic depressions:
   http://onlinelibrary.wiley.com/doi/10.1111/wej.12116/abstract?campaign=wolearlyview
3. Estimating global natural wetland methane emissions using process modelling: spatio-temporal patterns and contributions to atmospheric methane fluctuations:
   http://onlinelibrary.wiley.com/doi/10.1111/geb.12307/abstract?campaign=woletoc
4. Moore in Schleswig-Holstein: Geschichte – Bedeutung – Schutz:
   http://www.umweltdaten.landsh.de/nuis/upool/gesamt/moore/moorbroschuere.pdf
5. Guidance on reporting and accounting for Revegetation and Wetland Drainage and Rewetting activities in accordance with Article 3(3) of EU Decision 529/2013/EU:
   http://forest.jrc.ec.europa.eu/media/cms_page_media/232/LULUCF_%20Guidance_on_RV_and_WDR.pdf

6. Atmospheric deposition history of trace metals and metalloids for the last 200 years recorded by three peat gores in Great Hinggan Mountain, Northeast China: http://www.mdpi.com/2073-4433/6/3/380
7. Using multi-proxy palaeoecology to test a relict status of refugial populations of calcareous-fen species in the Western Carpathians: http://hol.sagepub.com/content/early/2015/01/16/0959683614566251
8. Nutrient fluxes from insect herbivory increase during ecosystem retrogression in boreal forest: http://www.esajournals.org/doi/abs/10.1890/15-0302.1
9. Ils ont fait de la pédagogie autour des tourbières de Franche-Comté. Recueil d'expériences pédagogiques: http://pole-tourbieres.us9.list-manage2.com/track/click?u=7ae9da62643c5475ac4beeb39&id=b465a13a27&e=b289e8a7a7
10. European glacial relict snails and plants: environmental context of their modern refugial occurrence in southern Siberia: http://onlinelibrary.wiley.com/doi/10.1111/bor.12133/abstract?campaign=wolearlyview
11. Fen ecosystem responses to water-level fluctuations during the early and middle Holocene in central Europe: a case study from Wilczków, Poland: http://onlinelibrary.wiley.com/doi/10.1111/bor.12129/abstract?campaign=wolearlyview
12. 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=wolearlyview
13. Effects of climate extremes on the terrestrial carbon cycle: http://onlinelibrary.wiley.com/doi/10.1111/gcb.12916/abstract?campaign=woletoc
14. Riparian plant community responses to increased flooding: a meta-analysis: http://onlinelibrary.wiley.com/doi/10.1111/gcb.12921/abstract?campaign=woletoc
15. Anticipated climate and land-cover changes reveal refuge areas for Borneo's orang-utans: http://onlinelibrary.wiley.com/doi/10.1111/gcb.12814/abstract?campaign=woletoc
16. EU 2010 biodiversity baseline — adapted to the MAES typology (2015): http://www.eea.europa.eu/publications/eu-2010-biodiversity-baseline-revision/at_download/file (17Mb!)
17. FLYER - Biodiversity in Europe, revision: http://www.eea.europa.eu/publications/eu-2010-biodiversity-baseline-revision/flyer-biodiversity-in-europe-updated
18. Algae alleviate carbon limitation of heterotrophic bacteria in a boreal peatland: http://onlinelibrary.wiley.com/doi/10.1111/1365-2745.12455/abstract?campaign=wolacceptedarticle

19. Methane emissions from an alpine wetland on the Tibetan Plateau: Neglected but vital contribution of non-growing season: http://onlinelibrary.wiley.com/doi/10.1002/2015JG003043/abstract?campaign=wolacceptedarticle
20. Rising methane emissions from northern wetlands associated with sea ice decline: http://onlinelibrary.wiley.com/doi/10.1002/2015GL065013/abstract?campaign=wolacceptedarticle
21. Cloudberry cultivation in cutover peatland: Improved growth on less decomposed peat: http://pubs.aic.ca/doi/abs/10.4141/cjps-2014-299
22. Physical properties of organic soil: Adapting mineral soil concepts to horticultural growing media and Histosol characterization: http://vzj.geoscienceworld.org/content/14/6/vzj2014.10.0146.abstract
23. Ecohydrological controls on water distribution and productivity of moss communities in western boreal peatlands, Canada: http://onlinelibrary.wiley.com/doi/10.1002/eco.1620/abstract
24. Role of morphological structure and layering of Sphagnum and Tomenthypnum mosses on moss productivity and evaporation rates: http://pubs.aic.ca/doi/abs/10.4141/cjss-2014-092
25. Indonesia's blue carbon: a globally significant and vulnerable sink for seagrass and mangrove carbon: http://link.springer.com/article/10.1007%2Fs11273-015-9446-y
26. Hydrologically driven ecosystem processes determine the distribution and persistence of ecosystem-specialist predators under climate change: http://www.nature.com/ncomms/2015/150731/ncomms8851/abs/ncomms8851.html
27. Ecosystem response to interventions: lessons from restored and created wetland ecosystems: http://onlinelibrary.wiley.com/doi/10.1111/1365-2664.12518/abstract?campaign=wolacceptedarticle
28. The effect of trap colour and trap-flower distance on prey and pollinator capture in carnivorous *Drosera* species: http://onlinelibrary.wiley.com/doi/10.1111/1365-2435.12408/abstract?campaign=woletoc
29. Ecosystem response to interventions: lessons from restored and created wetland ecosystems: http://onlinelibrary.wiley.com/doi/10.1111/1365-2664.12518/abstract?campaign=wolacceptedarticle
30. Long-wave infrared identification of smoldering peat fires in Indonesia with nighttime Landsat data: http://iopscience.iop.org/1748-9326/10/6/065002/article

31. Modeling relationships between water table depth and peat soil carbon loss in Southeast Asian plantations: http://iopscience.iop.org/1748-9326/10/7/074006/article
32. Swamp power: how the world's wetlands can help stop climate change: http://www.theguardian.com/environment/2015/jul/20/swamp-power-how-the-worlds-wetlands-can-help-stop-climate-change
33. The long-term development of peatlands in Peruvian Amazonia: http://etheses.whiterose.ac.uk/9392/
34. Modeling micro-topographic controls on boreal peatland hydrology and methane fluxes: http://www.biogeosciences-discuss.net/12/10195/2015/bgd-12-10195-2015-discussion.html
35. Peatland mining in Manitoba's Interlake: Cumulative impacts analysis focusing on potential nutrient loading and greenhouse gas emissions: https://www.iisd.org/publications/peatland-mining-manitobas-interlake-cumulative-impacts-analysis-focus-potential

Please send your contribution to the IMCG Bulletin by the 25th of each month: peatland@mweb.co.za