IMCG Bulletin: April 2016

INTERNATIONAL MIRE CONSERVATION GROUP

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Word from the Chair

Dear mire friends

Rather late than never: I am compiling this April issue at last at the end of May from the 'voorhuis' (the lounge) of Ab Grootjans in Haren, The Netherlands. For most of us this year has become extremely busy, likewise in South Africa and I had to find a moment here in Haren to compile this short Bulletin. I have attended here, amongst other events, a farewell function for Ab Grootjans who is retiring this year, but more on this notable event in the May issue of the Bulletin.

In August 2016 our General Assembly will be taking place in Malaysia. We are encouraging members to start considering nominations for the new members for the Main Board as the event is less than 3 months away. The Secretariat will inform members in the near future on the nomination process.

Please send your May contribution by 11 June 2016 to Piet-Louis Grundling at 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/ and in the *Thomson Master Journal List* (*Web of Science*) – **2014 Impact Factor 0.806**.

Recent articles include:

1. E**cohydrological analysis of a groundwater influenced blanket bog: occurrence of Schoenus nigricans in Roundstone Bog, Connemara, Ireland**. (A.P. Grootjans, G. Hensgens, R. Hogenboom, B. Aarts, J. Manschot and J.G.M. Roelofs)[Mires and Peat 18: Article 10] Published online: 18.04.2016
2. **Movement of tritiated water injected into blanket peat.** (R.S. Clymo)[Mires and Peat 18: Article 09] Published online: 17.04.2016
3. **Informing innovative peatland conservation in light of palaeoecological evidence for the demise of Sphagnum imbricatum: the case of Oxenhope Moor, Yorkshire, UK.** (J. McCarroll, F.M. Chambers, J.C. Webb and T. Thom)[Mires and Peat 18: Article 08] Published online: 11.04.2016

Please send **ALL SUBMISSIONS** on **any topic** relating to mires, peatlands and peat, 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/IF journal.

News from our regions

Hans Joosten: joosten@uni-greifswald.de and Bev Clarkson Clarksonb@landcareresearch.co.nz

Australasian news

A joint conference of the Society for the Ecological Restoration Australasia (SERA) and New Zealand Ecological Society (NZES) is being held in Hamilton, Waikato, 19-23 November 2016 http://www.era2016.com/ . A wide range of themes will structure the conference and abstract submissions are due 1 August. The field trip programme includes two peatland excursions. The first is to Torehape cut-over restiad bog, where restoration research over more than a decade has resulted in best practice for restoring the plant and invertebrate communities after peat extraction. Participants will also visit Kopuatai Bog, a Ramsar site and NZ's best example of the target *Sporadanthus ferrugineus* restiad bog type. The second peatland excursion is to Lake Rotopiko/Serpentine and surrounding peatland, which is a community-led restoration programme and surrounded by a predator-proof fence. This is the site of the National Wetland Trust's proposed National Wetland Centre of New Zealand.

Torehape mine restoration: islands constructed from of turves transferred from adjoining peatland

Southeast Asia: Wetlands International criticises conservation claims of APP

In IMCG Bulletin March 2016 we reported: "Drainage canal blocking in **Sumatra and Kalimantan** that Asia Pulp & Paper Group (APP) supported by Deltares is now undertaking aims to reduce fire risk and enhance conservation of remaining natural forest in and around its concessions. In total 7,500 blocks are planned across all concession areas that supply to APP with 3,500 already completed since October 2015." Marcel Silvius, Programme Head Climate-Smart Land-Use of Wetlands International, reacts as follows:

With reference to the information, please note that the canal 'blocking' undertaken by APP involves installation of compressed peat dams in the canals with a spillway of 50 to 75 cms around it (as described in the linked paper: here). This means that APP is merely putting in place the normally required water management infrastructure for proper plantation management. The spillways will enable continued drainage, but now at a managed level. In general, under normal weather circumstances, a spillway of 50 cm will align with the Indonesian Peatland management legislation (PP71), which requires a maximum of 40 cm drainage (50 cm drainage in the drains results in 40 cm on land). With 75 cm deep spillways maintaining that legally required water level will unlikely be possible, even under normal weather conditions, and especially in very dry years

(i.e. the next el Niño) both the 50 cm to 75 cm spillways will lead to continued drainage and thus severe drying out of the top soil. Drainage can influence the top soil up to a distance of two km from the drains. So, blocking perimeter drains in this way endangers also areas up to 2 km outside of the concession boundaries.

APP is thus putting in place infrastructure for controlled drainage, which raises the question why they haven't done this from the outset of development… The previous uncontrolled drainage may be considered negligent if not criminal (considering the many fires that have resulted from these practices). The continued drainage under the new management scheme will result, however, in the usual soil subsidence related to compaction and 9.1 tCO_2 emission per ha per year per 10 cm drainage, and will in the medium to long term bring the soil elevation in most areas down to the drainage limit, resulting in frequent and prolonged floods and thus loss of productivity. That process is irreversible, unfortunately. In Indonesian peats the subsidence rate at 60 cm drainage is between 3 to 5 cm per year.

APP is thus taking measures to reduce impacts and risks but not to stop impacts or avoid risks, and the end result will be the same. Wetlands International therefore argues that current operations on peat need to be evaluated against the risk of flooding that creeps in as a result of soil subsidence caused by drainage. The drainability limit should be ascertained. A responsible time bound plan should be developed by each corporate player in a transparent way, to plan and prepare for phasing out of drainage based land-use from peat and phasing in of innovative land use involving full rewetting. As a priority, current operations should develop 2 kilometre wide hydrological buffer zones within their concession areas, i.e. starting from the perimeter drains inward. This will prevent hydrological impacts of adjacent areas and thus decrease fire risks in these areas as well as in the plantation. This means that perimeter drains and nearby drains need to be blocked fully (i.e. without spillways!). Such buffer zones and other rewetted areas can be planted with paludiculture crops, which will create useful pilots for longer term sustainable land-use development. Buffer zone areas adjacent to HCV (high conservation value) areas should preferably be restored with a natural vegetation.

Five Steps to Restore Indonesia's Degraded Tropical Peatlands (by Nazir Foead)

Indonesia has approximately 15 million to 20 million hectares of tropical peatlands, which is the fourth largest in the world. Those areas store 60 trillion tons of carbon, which is six times more than the total carbon emissions released globally in 2011. In 2015, approximately 2.6 million hectares of land in Indonesia were burnt, half of it peatland. The fires resulted in several deaths, while more than 150,000 people in six provinces suffered from acute respiratory illnesses as a result of the smoke. The World Bank estimates that economic losses due to the fires amounted to $16 billion. Daily emissions from Indonesian forest fires in October last year exceeded the total emissions from the entire United States economy, not to mention that burning on a similar scale has occurred annually for nearly 20 years.

These facts underline the importance of peatland restoration. Indonesia has submitted its intended nationally determined contributions (INDCs) to the United Nations Framework Convention on Climate Change (UNFCCC) and declared its 29 percent emission reduction targets for 2030. Restoring peatland would definitely enable this country to meet its target. The national catastrophe has encouraged the government to make a commitment that goes beyond business as usual.

Taking the moment at the Paris Conference of the Parties opening in December, President Joko "Jokowi" Widodo declared his plan to establish the Peatland Restoration Agency (BRG). A month later, the BRG was established with a very specific mandate, to restore two million hectares of burnt and/or degraded peatland in five years. Now, people must be wondering how the agency could fulfil its mandate to solve the daunting problem of peatland? Here are the five options:

Canal Blocking: Dry peat is very prone to be burnt, especially during the dry season. A lit fire is all it needs to create a massive and uncontrollable burn. Consequently, peatlands have to be wet. We have to stop the phenomenon where peatlands are converted to drainage-dependent land use, which is triggered by

unsustainable market demand. Blocking drainage is fastest measure that can be undertaken to effectively minimize peatland from drying out.

Water Management: Water management is crucial after blocking the drainage. Considering that peatland is a hydrological ecosystem, the degradation in some parts of the peatland will affect the rest of the ecosystem. The BRG will soon establish water management guidelines, so the related work will be conducted in similar ways.

Revegetation: Degraded peatland is subject to revegetation. All the plants that are burnt need to be replanted with better planning. Revegetation is an important factor in keeping the peatland wet. The BRG provides a guideline of revegetation using local-specific species, such as sago palms, rubber trees and local timber species such as jelutung and galam, as well as some vegetable species. As peatland is also home to many animal species, revegetation plays an important role in improving biodiversity, which aids the acceleration of peatland restoration. For instance, orangutans are important dispersal agents of fruit seeds.

Rezoning: Indonesia has a regulation that classifies peatland areas for protection and cultivation. But more than 70 percent of the degraded peatlands are within cultivation areas. In this case, we have to adjust the zoning based on depth and on how critical the area is. The agency has mapped the peat in terms of hydrological units, which would provide a scientific basis for rezoning. Identified restoration areas within concessions would require concession holders to restore such areas.

Restore Livelihoods: Last but not least, the agency is committed to empower local communities and indigenous people by restoring their livelihoods and strengthening their rights. This is a logical choice when we are considering that peatlands are remote and that only local communities could play an effective role in monitoring these areas. They are in the best position to see if there are potential fire hazards in the peatland and they can act more effectively. Planting peatland-friendly species is of critical importance, because of the unique characteristics of the ecosystem. Consequently, enabling community access to markets is also part of this strategy.

Peatland restoration is in line with a sustainable development agenda in which environmental aspects are highly valued. Jokowi has taken a bold move by implementing a moratorium on the issuance of permits in peatland areas, as well as the newly announced moratorium on licences for palm oil plantations.

Peatland fires occur in Indonesia with alarming regularity. Until now, only a few people cared about the peatlands, with most only seeing the extractive value of these areas. In the meantime, the whole world seems to pay attention as the peatland degradation has a global impact on climate change, which puts all of us in danger.

Peatland restoration is the responsibility of mankind today for future generations. The mandate of the BRG can never be fulfilled by us alone. We encourage more public awareness and initiatives to act on restoring and keeping the peatlands wet. Through smart planning, participatory processes, simple and doable steps and constructive collaboration by all stakeholders, we are very optimistic that two million hectares of peatland could be restored within five years.

Restored peatlands equal restored humanity. Join us, now. Would you?

Nazir Foead is the head of the Indonesian Peatland Restoration Agency (BRG).

From: http://jakartaglobe.beritasatu.com/opinion/commentary-five-steps-restore-indonesias-degraded-tropical-peatlands/

Norway to help Indonesia developing peatland-friendly agriculture

The Norwegian Ambassador to Indonesia Stig Traavik said that Norway is ready to help Indonesia to develop peatland-friendly agriculture. "We'll help Indonesia in mastering how to cultivate plants without drying the peatlands, and how to increase the value added of the plants. There are some plants that can grow without

drying the peat, such as sago," Traavik said in Jakarta on Tuesday, May 3, 2016, adding that the country will also help to market the commodities produced through peatland-friendly agricultural practices.

The Ambassador said Norway is ready to support all efforts to prevent damages caused by the land and forest fires. According to him, the important thing to prevent forest fires, especially in peatlands, is not to let the lands dry up.

"If the land becomes dry, then no technology in the world can cope with it. And if it burns, Indonesia will have a very big problem," he explained.

Earlier, in February 2016, the government of Norway had allocated a grant of US$50 million to help the peat lands restoration program in Indonesia. Meanwhile, the US government has also allocated a grant of $17 million.

http://en.tempo.co/read/news/2016/05/04/206768365/Norway-to-Help-Indonesia-Developing-Peatland-friendly-Agriculture

Paludiculture Workshop Jakarta

On 10 and 11 May 2016 a workshop “Peatland paludiculture – an opportunity to reduce greenhouse gas emissions and improve livelihoods” was organised in Jakarta, **Indonesia**, by the FAO and the Ministry of Environment of Indonesia. Participants heard important presentations on technics of peatland rewetting, greenhouse gas emission reductions and their monitoring, perspectives of paludicultures (incl. fisheries, cost-benefit-analysis), and the Indonesian Peatland Restoration Agency’s Roadmap for peatland restoration including paludiculture. In workshops (see picture below) the challenges, solutions and early results of paludiculture projects and further steps towards paludiculture were discussed.

Europe

IMCG comments on EU bioenergy plans

European Union Member States have agreed on a new policy framework for climate and energy, including EU-wide targets for the period between 2020 and 2030. The targets include reducing the Union's greenhouse gas (GHG) emissions by 40 % relative to emissions in 2005 and ensuring that at least 27 % of the EU's energy comes from renewable sources. The European Commission is now reviewing the sustainability of all bioenergy sources and final uses for the period after 2020. In its reaction on the consultation that was organized on the subject IMCG expressed the following important elements:

- Bioenergy from drained peatlands should be completely forbidden, because this leads in any case to larger emissions from (fossil) soil carbon than the achieved replacement of fossil fuels. This applies also for bioenergy from "previously drained" peatlands, because the designation to "bioenergy crops" from crops cultivated on these lands prevents these lands from being rewetted and their soil emissions strongly reduced.
- The criterion "Biofuels cannot be grown in areas converted from land with previously (before 2008) high carbon stock, such as wetlands or forests" painfully illustrates that the EU does not understand the character of peatlands. Bioenergy from peatlands drained before 2008 have total emissions that per produced unit of energy several times exceed the emissions from burning fossil fuels.

Europe central

The **Czech** National Sumava Park Administration wants to restore more than 1000 hectares of peatland during the next five years as a means to fight drought. More info: http://article.wn.com/view/2016/05/26/Sumava_National_Park_wants_to_restore_lots_of_swamps_peatlan/

Belarus has received from the European Union peatland harvesting equipment that will help the country ensure the sustainability of its ecosystems. The handover ceremony took place in the 3th week of May at the Sporauski National biological reserve of the country's Brest region, in the framework of the EU-funded Clima East project on conservation and sustainable management of peatlands in Belarus to minimise carbon emissions and help ecosystems adapt to climate change. More info: http://enpi-info.eu/maineast.php?id=45234&id_type=1&lang_id=450

Europe West

€16 Million Support for Moorland Partnership

The Moors for the Future Partnership, which works to protect priority international habitats in the Peak District and South Pennines, **United Kingdom**, has received 16 million euros to deliver the MoorLIFE 2020 project. This includes €12 million from the EU's LIFE fund - which supports environmental, nature conservation and climate action projects throughout Europe - the largest award ever given to a UK-based project. The Partnership, hosted by the Peak District National Park Authority, is supported by partners including three major utility companies Severn Trent Water, United Utilities and Yorkshire Water, who have each made significant contributions to the project's €16 million total. The money will enable the team to continue the progress that has been made over the past 12 years, protecting huge areas of the internationally important South Pennine Moors. For more details on the Moors for the Future Partnership, go to www.moorsforthefuture.org.uk and the EU LIFE programme: http://ec.europa.eu/environment/life.

Vegetation mapping enables assessment of greenhouse gas emission reduction achieved by peatland restoration – the case of a LIFE+ project in the Netherlands (Gert-Jan van Duinen, John Couwenberg, Christian Fritz & Jeroen van Leijssen)

Currently, restoration projects are carried out in the two main remnants of the former raised bog system Peel, in the Southern part of the Netherlands. Both sites are part of the Natura 2000 network of European nature reserves. The restoration measures are financed by the European Union in the framework of the LIFE+-programme, the provincial governments and water board. These two projects aim to restore the bog ecosystem by improving the hydrological conditions for the development of active raised bog, where possible. Thereby, both projects also aim to restore the ecosystem service of carbon storage and sequestration that is typical for peatlands and which is lost by drainage and peat extraction. Transforming drained and fertilized areas of farmland within the peatland is expected to stop emission of the strong greenhouse gas N_2O, in addition to reduction of C-emission.

To estimate the future reduction of greenhouse gas (GHG) emission following the restoration measures, vegetation types were used as a proxy. The assessment methodology using Greenhouse Gas Emission Site Types (GEST-approach) is developed by Couwenberg et al. (2011) based on the indicative value of vegetation types for specific water level regimes. The most recent vegetation mapping of the nature reserve was taken as base. To each vegetation type GHG fluxes were assigned using published GHG emission values from sites with a similar vegetation and water level. This approach makes the GHG emission reduction resulting from the improved hydrological situation and restoration of the peat forming vegetation transparent and verifiable in a relatively simple manner. The basis of this assessment is the vegetation mapping usually carried out at regular intervals in the context of monitoring of Natura 2000 sites. No complicated or expensive additional measurements are needed.

In the case of one of the two LIFE+ projects, the Deurnsche Peel and Mariapeel, it is estimated that the restoration measures lead to a reduction of GHG emission of 5,000 to 10,000 tons of CO2 equivalents per year, a reduction of 20 to 40%. This amount equals approximately the emission of 1,000 households in The Netherlands. The emission reduction in the other Peel reserve will be assessed in the near future. This GEST-approach also enables a retrospective assessment of the GHG emission increase or reduction of an area following previous degradation and restoration measures, respectively.

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News snippets

North America: The Mad Dash to Figure Out the Fate of Peatlands
As the planet's peat swamps come under threat, the destiny of their stored carbon remains a mystery….
Read more: http://www.smithsonianmag.com/science-nature/mad-dash-figure-out-fate-peatlands-180958841/#kRvWmwX90IGxjIoz.99

South America: Amazon mires
The Amazon basin contains the largest wetland system with 295 peatlands of up to 9 m of peat…..do you agree? Read more:
https://biodesign.asu.edu/hinsby-cadillo-quiroz/amazon-peatlands

African sisal plant roped into Shetland peat project
Tubes made from sisal have been used to rewet areas of burned peat. The Shetland Amenity Trust has been pioneering the use of sisal according to Scottish Natural Heritage. Find out more at:
http://www.bbc.com/news/uk-scotland-north-east-orkney-shetland-35978987

UK: Bog Burning vs Bog Conservation
European Commission begins legal action against UK Government for allowing the burning of blanket bog for sport shooting. Read more at:
http://www.rspb.org.uk/whatwedo/campaigningfornature/casework/details.aspx?id=tcm:9-326701
and, for insights into the underlying issues:
http://www.rspb.org.uk/community/ourwork/b/martinharper/archive/2016/04/29/england-39-s-moors-a-burning-issue.aspx

Russia: no peat fire disasters in 2016!!
Russia will not have problems with peat fires this summer according to a statement made on Wednesday by the Emergency Situations Minister Vladimir Puchkov. He said that peat burns in the winter under the snow, in the spring and in the summer. The main thing is that it is kept under control. Read more: http://sputniknews.com/voiceofrussia/2012_05_24/75772922/

Japan: KU, NIHU to partner with Indonesia's Peatland Restoration Agency
On 25 April, Kyoto University, the National Institutes for the Humanities (NIHU), and Indonesia's Peatland Restoration Agency (Badan Restorasi Gambut: BRG) announced a partnership to restore Indonesia's peatlands. The goals of this partnership are to prevent peat fires, which are annually causing substantial emissions of smoke and CO2, rehabilitate degraded areas, and improve livelihood of local communities. Read more;
http://www.kyoto-u.ac.jp/en/research/events_news/department/se_asia/news/2016/160425_1.html

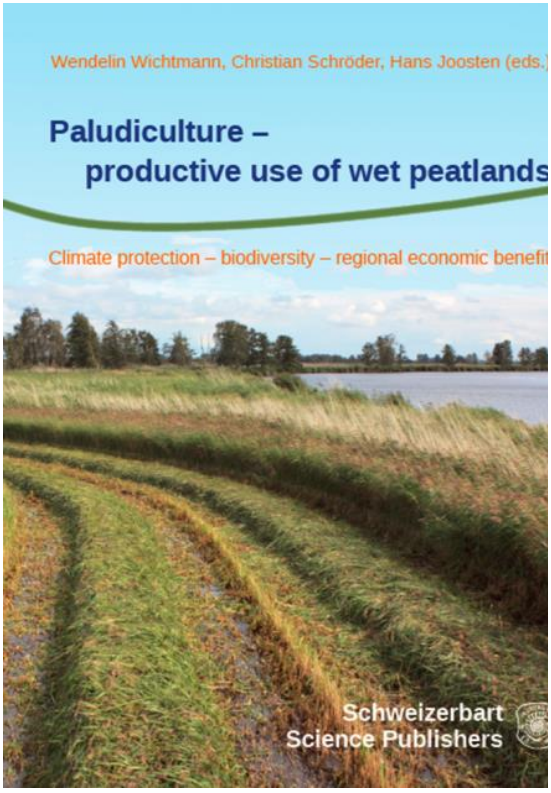
Singapore has raised concerns about the impact of transboundary air pollution, stressing that both domestic action and greater international cooperation are essential to address the challenge. Speaking at an event convened by the United Nations Environment Programme (Unep) in Nairobi, Kenya, May 2016, which was attended by more than 120 environment ministers, Senior Minister of State (Health and the Environment and Water Resources) Amy Khor said air pollution stunts economic development and is detrimental to human health. Calling it a key environmental challenge faced by many countries, Dr Khor said the burning of peatlands and forests in South-east Asia has resulted in transboundary haze. Dr Khor did not refer specifically to the worst-ever haze episode in the region last year, which affected tens of millions of people and cost Indonesia an estimated US$16 billion (S$22.1 billion) and Singapore about S$700 million. More info: https://www.gov.sg/news/content/today-online--spore-raises-concerns-over-haze-at-un-meeting

New FAO infographic on peatlands and climate change.

The Food and Agricultural Organisation of the United Nations (FAO) has produced a new infographic on the role of peatlands for climate change adaptation and mitigation. It also presents key actions and strategies for responsible peatland management that maintain peatland ecosystem services while sustaining and improving livelihoods. Download it here: http://bit.ly/FAOinfographic_peat Further FAO materials on peatlands and climate change include the guidebook "Towards climate-responsible peatland management" (http://bit.ly/cc_peat_guide) and FAO videos: http://bit.ly/fao-playlist-peat

Interested to learn more? Join the Peatlands and Climate Change Mitigation Discussion Group for Organic Soils and the Peatlands Mitigation Initiative: https://dgroups.org/fao/peatlands/joinmicca@fao.org
www.fao.org/in-action/micca/knowledge/peatlands-and-organic-soils/

New book on paludicture published!



Wichtmann, W., Schröder, C. & Joosten, H. (Eds) 2016. Paludiculture - productive use of wet peatlands. VIII, 272 pages, 153 figures (mostly color), 109 tables, 49 infoboxes, 21x28cm, bound, 79.90 € (includes surface shipping), ISBN 978-3-510-65283-9

For full book description, table of contents, sample pages and book reviews (as soon as available) and to order online: http://www.schweizerbart.com/9783510652839?af=email

A German language edition of this new title is also available: Paludikultur - Bewirtschaftung nasser Moore http://www.schweizerbart.de/9783510652822

Peatlands cover some 4 million km² worldwide. Approximately 15% of this area – particularly in the temperate zone and the (sub)tropics – is drained, largely to be used for conventional agriculture and forestry. Drainage leads to irreparable damage to peatlands. Subsidence and soil degradation frustrate long-term peatland utilisation and are responsible for almost 5% of the total global anthropogenic greenhouse gas emissions.

Soil degradation and greenhouse gas emissions can be strongly reduced by rewetting. Rewetting, however, makes conventional land use impossible. In contrast, paludiculture on wet and rewetted peatlands allows for permanent, sustainable cultivation of peatlands.

This book introduces the new method of paludiculture as a sustainable and economically sensible land use practice for the production of biomass, which is further able to reactivate or sustain a wide variety of ecosystem services impaired by peatland drainage. Biomass from wet peatlands is useful for various applications: as fuel and raw material, food, fodder and medicine.

The authors discuss and evaluate the ecosystem services and economic feasibility of various land use options. Practical recommendations for and legal aspects of implementing paludicultural methods are presented as well as experiences with its worldwide application. The historical development of peatland utilization, including its increasing intensification, the resulting soil degradation, and the recent development of paludiculture as an alternative, balanced land use approach are described.

The book provides extensive information for practitioners and scientists as well as decision-makers in politics, management, and explains the principles of wise peatland management, encouraging the worldwide implementation of paludiculture as a unique form of sustainable utilisation of organic soils.

Peatland conservation relevant papers April 2016

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

1. Upscaling methane emission hotspots in boreal peatlands: http://www.geosci-model-dev.net/9/915/2016/gmd-9-915-2016.pdf
2. Origin of a boreal birch bog woodland and landscape development on a warm low mountain summit at the Carpathian–Pannonian interface: http://hol.sagepub.com/content/early/2016/03/17/0959683616632884.abstract
3. Multi-year greenhouse gas balances at a rewetted temperate peatland: http://onlinelibrary.wiley.com/doi/10.1111/gcb.13325/full
4. Floodplain Meadows - A technical handbook: http://www.floodplainmeadows.org.uk/floodplain-meadow-technical-handbook
5. The influence of climate on peatland extent in Western Siberia since the Last Glacial Maximum: http://www.readcube.com/articles/10.1038/srep24784
6. Holocene carbon dynamics and atmospheric radiative forcing of different types of peatlands in Finland: https://helda.helsinki.fi/handle/10138/161250
7. Water table-dependent hydrological changes following peatland forestry drainage and restoration: Analysis of restoration success: http://onlinelibrary.wiley.com/doi/10.1002/2015WR018578/full
8. Prehistoric human impact on tree island lifecycles in the Florida Everglades: http://hol.sagepub.com/content/26/5/772?etoc
9. Effects of wetland plants on denitrification rates: a meta-analysis: http://onlinelibrary.wiley.com/doi/10.1890/14-1525/abstract?campaign=woletoc.
10. Resilience of peatland ecosystem services over millennial timescales: evidence from a degraded British bog: http://onlinelibrary.wiley.com/doi/10.1111/1365-2745.12565/abstract?campaign=woletoc
11. Forests on drained agricultural peatland are potentially large sources of greenhouse gases – insights from a full rotation period simulation: http://www.biogeosciences.net/13/2305/2016/
12. Venus flytrap carnivorous lifestyle builds on herbivore defense strategies: http://genome.cshlp.org/content/early/2016/04/28/gr.202200.115?top=1
13. Influences and interactions of inundation, peat, and snow on active layer thickness: http://onlinelibrary.wiley.com/doi/10.1002/2016GL068550/abstract?campaign=wolacceptedarticle
14. Degradation of tropical Malaysian peatlands decreases levels of phenolics in soil and in leaves of *Macaranga pruinosa*: http://journal.frontiersin.org/article/10.3389/feart.2016.00045/full?utm_source=newsletter&utm_medium=email&utm_campaign=Earth_Science-w21-2016
15. Long-distance dispersal and barriers shape genetic structure of peatmosses (Sphagnum) across the Northern Hemisphere: http://onlinelibrary.wiley.com/doi/10.1111/jbi.12716/abstract?campaign=woletoc
16. A framework to combine three remotely sensed data sources for vegetation mapping in the Central Florida Everglades: http://link.springer.com/article/10.1007%2Fs13157-015-0730-7
17. In the line of fire: the peatlands of Southeast Asia: http://rstb.royalsocietypublishing.org/content/371/1696/20150176