



## IMCG Bulletin: September 2014

### Word from the Editorial Team



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

Dear mire friends

Our chair, Piet-Louis Grundling is in the final throes of completing his PhD thesis so this edition of the Bulletin has been compiled by the editorial team members, Bev Clarkson and Hans Joosten. We wish Piet-Louis all the best for a successful outcome now he is on the home straight.

September has been a busy month for some exciting mire activities. It is pleasing to see a draft recovery plan has been developed to protect the threatened alpine *Sphagnum* mires in Australia. These mires were a highlight of the IMCG special field symposium to Australia in late 2013, which was organised by our former chair, Jennie Whinam, Tasmania.

The Belarus field symposium in July 2014 generated a lot of interest in management of peatlands from a wide range of perspectives and as a result, this topic will be the focus of our next special issues of Mires and Peat. Read the details below, and please consider contributing to our journal, which is so ably steered by our Editor-in-Chief, Olivia Bragg.

Congratulations to our very own Asbjørn Moen on receiving the honour of a Norwegian Knighthood for services to science and conservation. Asbjørn was instrumental in the establishment of IMCG in 1984 and has been closely involved in our organisation ever since. Read more about his award on page 6.

As per usual, 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). The Editors are always happy to receive 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 and practitioners, as well as for 115 (so far) freely downloadable published articles.

The new articles for **September and October** are:

- An exploration of common reed (*Phragmites australis*) bioenergy potential in North America (R. Vaičekonytė *et al.*) [Volume 13, Article 12].
- Shallow inundation favours decomposition of *Phragmites australis* leaves in a near-natural temperate fen (C. Völlum and F. Tanneberger) [Volume 14, Article 06]; and
- On the relations between water regime, mass accretion and formation of ombrotrophic conditions in *Sphagnum* mires (N. Malmer) [Volume 14, Article 07].

Late news is that there may be one more article for Volume 13 (*Reed as a Renewable Resource and Other Aspects of Paludiculture*), so it will remain open for the time being.

Manuscripts for Volume 15, the Special Volume on **Mountain Peatlands**, continue to arrive. In addition to the three articles already published, we now have seven contributions in hand at various stages of processing and more have been promised. Authors who are still drafting their manuscripts for this volume, and those from whom we are awaiting additional materials or revisions after peer review, are gently reminded that the editorial team are very much looking forward to hearing from them soon! If you have not offered your



manuscript yet, there is still time; but please let us know your intentions before the end of December 2014 by sending an email to [o.m.bragg@dundee.ac.uk](mailto:o.m.bragg@dundee.ac.uk).

For the next Special Volume of *Mires and Peat*, the proposed theme is **Peatland Management Strategies and Action Plans**. During the recent IMCG Biennial Symposium at Berezinski Biosphere Reserve, Belarus (for the programme of presentations, see [http://www.imcg.net/media/2014/imcg\\_bulletin\\_1408.pdf](http://www.imcg.net/media/2014/imcg_bulletin_1408.pdf)) it became clear that there is renewed and lively international interest in such matters; in federal and newly independent states, countries and other administrative structures that are developing peatland management strategies for the first time; as well as within administrations whose existing strategies are now being implemented, augmented and updated – for example, in response to the new ecosystem services and carbon agendas. The purpose of this Special Volume will be to provide a concise global overview of current approaches, new developments and best practice; as a timely synthesis to inform policy development worldwide. So, wherever you are based, we need to include information on what is happening in your organisation, state, country and/or region. We shall be approaching individuals that we identify as potential authors in the coming months; but if you already know what your contribution to this volume will be, please send your proposal(s), e.g. for manuscript(s) that you can author and/or co-ordinate, to the Editor-in-Chief [o.m.bragg@dundee.ac.uk](mailto:o.m.bragg@dundee.ac.uk) in the first instance. We are also looking for Guest Editors to help assemble this important Special Volume, so if you have appropriate expertise and would like to be involved, please volunteer *via* the same route.

Finally, in response to the invitations that appeared in the last two *Bulletins*, we can now tentatively anticipate some exciting new additions to the *Mires and Peat* Editorial Board (EB) by the end of 2014. If you would also like to join the EB but have not got round to volunteering yet, there are still a few weeks left before the next opportunity for the Editor-in-Chief's proposals to be considered by the relevant IPS committee (10–12 November); this is the limiting factor as the IMCG approval process works to a more flexible schedule. So, here is the information one more time:

#### **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).

#### **Australasia**

Bev Clarkson and Jennie Whinam [Clarksonb@landcareresearch.co.nz](mailto:Clarksonb@landcareresearch.co.nz)

#### **New Zealand wetland research update: 2013-2014**

A summary of the NZ government-funded wetlands research programme is on-line. Highlights include: Monitoring of populations of the threatened stem-boring moth, *Houdinia flexilissima*, which is confined to one host plant, *Sporadanthus ferrugineus*, revealed densities were similar in natural, restored and translocated



wetland sites. At the translocated sites, it established from larvae contained within stems of the original translocated *Sporadanthus* plants. The absence of the need for additional and costly interventions is encouraging for the long-term conservation of *Houdinia*.

An experiment on the impacts of nutrient (N, P) addition to mires showed P addition had a marked negative influence on the growth of many species. The growth of wire rush (*Empodisma robustum*) cluster roots, in particular, was curtailed under P fertilisation, drastically reducing its ability to form peat. Increased P loadings from the catchment, e.g. via run-off, groundwater or aerial deposition of agricultural fertiliser, are likely to threaten the integrity of our peat bogs.

<http://www.landcareresearch.co.nz/science/plants-animals-fungi/ecosystems/wetland-ecosystems/updates>

### Call for comment – Australian Alpine Bogs Recovery Plan

The Threatened Species Scientific Committee (TSSC) is seeking public comment on the draft national recovery plan for the Alpine Sphagnum Bogs and Associated Fens ecological community which is listed as endangered under Australia’s national environmental law, the Environment Protection and Biodiversity Conservation Act 1999 (the EPBC Act).

The recovery plan has been developed with expertise and cooperation of independent experts and land managers responsible for conserving the ecological community. The plan has been developed using the most recent and emerging information on the ecological community and its threats. The plan sets out the management, research and other actions necessary to stop the decline and support the recovery of the ecological community so that the chance of its long-term persistence in nature is maximised.

Details about the public consultation, including the document referred to above can be found at:

[www.environment.gov.au/biodiversity/threatened/recovery-comment.html](http://www.environment.gov.au/biodiversity/threatened/recovery-comment.html)

Public comments close on 3 December 2014.



*Prof R.S. Clymo and Jennie Whinam examine Sphagnum cristatum at Hartz Mountains National Park. Jennie took the opportunity to take Dicky Clymo to see two species of Sphagnum (the other was S. falcatulum at Tahune forest) while he was in Tasmania visiting his family. Dicky also participated in a workshop discussing the draft Alpine Sphagnum Bogs and Associated Fens Recovery Plan organised by Natural Resource Management (South).*

### South East Asia

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

### Indonesia ratifies AATHP and protects peatland ecosystems

The Indonesian parliament on Tuesday, 16th September 2014 agreed to ratify the ASEAN Agreement on Transboundary Haze Pollution (AATHP) which was earlier signed in 2003. The agreement came into existence in



response to the 1997-98 haze which affected six countries and cost losses up to 3 billion US dollars in flight cancellations, decline in tourism, health issues and disruption to businesses. The decision was well received by ASEAN neighbours especially Singapore and Malaysia.

On the same day, the President signed Governmental Decree No 71, Year 2014 for the Protection and Management of Peatland Ecosystems. This document was much discussed by all parties since 2006 and is expected to safeguard peatland ecosystems in Indonesia.

Other ASEAN peatland news can be accessed at : [Peatland Newsletter September 2014](http://www.aseanpeat.net/view_file.cfm?fileid=422)  
([http://www.aseanpeat.net/view\\_file.cfm?fileid=422](http://www.aseanpeat.net/view_file.cfm?fileid=422))

## UK

Dr Olly Watts, RSPB [olly.watts@rspb.org.uk](mailto:olly.watts@rspb.org.uk)

### **New call to restore English upland peatlands**

We must triple the area of peatlands in the English uplands in restoration management by 2020.

So says a coalition of conservation organisations and water companies, who are calling on Government to increase commitment and resources so that our uplands can thrive with wildlife and provide the carbon, water and other environmental services that healthy bogs deliver.



Site visits and London meetings with Members of Parliament are underway, together with the prospect of a parliament debate to raise the issue across Government. To help get the key messages across, UK NGO the RSPB has produced a short infographic style report with some key facts and figures about the English uplands, their condition and the costs and benefits of restoration, and the much better value society should be getting from the public investment in the English uplands.

*Intensive burning and drainage measures on a Natura 2000 deep peatland site in the English Pennines*

The partnership, which includes the RSPB, the National Trust, The Wildlife Trusts, CPRE and others, calls upon Defra to:

- Work to bring England's upland peatlands back into the condition that will maintain the vital ecosystem services these habitats provide for society
- Support and play its part in the IUCN's UK Peatland Programme's target for 1 million hectares (200,000 ha in England) of healthy and well-managed upland peatlands by 2020, and the Committee on Climate Change's call to triple the area of upland peatland being restored
- Develop capital funding for peatland restoration, through a combination of public and private contribution and partnerships, commensurate with the above scale of ambition for upland peatland restoration



- Secure funding to ensure ongoing well-managed upland peatlands through a combination of rural funding and market related funding routes, including the practical development of innovative routes including the Peatland Carbon Code.
- Work to swiftly adopt a methodology for estimating carbon fluxes from peatlands in common with other UK countries, include peatland carbon in greenhouse gas inventories and voluntarily include peatlands in the UK's Kyoto Protocol reporting

The initiative helps the IUCN's drive to have one million hectares of healthy and well-managed upland peat in the UK by 2020. As well as the wildlife interests of the nature conservation organisations, the water companies are increasingly aware of the ecosystems services peatlands can bring to their catchment areas. There are climate change benefits from turning carbon sources into sinks. Revitalising the land involves local people and contributes to local businesses and sustainable communities. The partnerships that have started this renewal need to grow and reach out over much larger areas, especially across our National Parks and Areas of Outstanding Natural Beauty.

Government has a vital role in making this widespread recovery happen. This is already recognised in existing funding and support for upland restoration. The new agri-environment regime in England, currently in development, provides the opportunity to greatly improve the public benefits from agri-environment money spent in the uplands.

Scotland has an ambitious programme of peatland restoration already underway, with £15 million of extra funding over two years, and Wales now has a concerted plan for restoring its peatlands. Action in England is lagging and much needed: pump-priming through capital investment, nurturing partnerships among different uplands interests, and developing both public and private funding. All of these are essential to expand peatland regeneration in England – a sound investment to reduce greenhouse emissions and gain wide society benefits.

More information in the *England's Uplands Peatlands: Turning Around a Crisis* report at: [http://www.iucn-uk-peatlandprogramme.org/sites/all/files/English%20Upland%20peatlands%20report%20Jun14%20Final\\_1.pdf](http://www.iucn-uk-peatlandprogramme.org/sites/all/files/English%20Upland%20peatlands%20report%20Jun14%20Final_1.pdf)

The partner organizations in this initiative are: RSPB, National Trust, the Wildlife Trusts, Buglife, Campaign for National Parks, CPRE, Dartmoor Mires Project, Exmoor Mires Project, John Muir Trust, North Pennines AONB, South West Water, Wildfowl and Wetlands Trust, and United Utilities.

## News from all over

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

### **IUCN Peatland Action: Learning from Success in Inverness**

The Annual IUCN Conference 'Investing in Peatlands' will be held from 20 - 22 October 2014 in Inverness, Scotland. The focus will be on peatland management including restoration techniques and benefits. An update will be given on the work of the Peatland Code and the opportunities for private funding of peatland management. For more information: [www.iucn-uk-peatlandprogramme.org](http://www.iucn-uk-peatlandprogramme.org)



### Asbjørn Moen Knight 1st Class of the Royal Norwegian Order of St. Olav!



His Majesty Harald, King of Norway, has appointed Professor Asbjørn Moen Knight 1st Class of the Royal Norwegian Order of St. Olav. The Order of St. Olav is awarded to individuals for remarkable accomplishments on behalf of the country and humanity. The award was presented to Asbjørn by Deputy County Governor Skjelbred Brit on September 8, 2014. The new Knight was most concerned with sharing the honour with his colleagues: "I see this award as a recognition of us who have worked in the field of ecology and conservation at the Natural History Museum for the last 45 years".

*Asbjørn: always his notebook, always discussion ;-)*

Asbjørn Moen has had, and continues to have, indeed an enormous influence on mire research and conservation, not only in Norway but worldwide. His scientific achievements in mire ecology and conservation management are widely recognized. He has participated in scientific mire expeditions and excursions in 20 countries, of which the 2007 expedition on horseback into the extensive, unexplored peatland wilderness of Peninsula Mitre (Tierra del Fuego 2007) deserves special mention (see [http://mires-and-peat.net/media/map14/map\\_14\\_01.pdf](http://mires-and-peat.net/media/map14/map_14_01.pdf)). He has directed and continues to participate in important international mire research and conservation projects, including the World Bank wetland project in Estonia (1996-1998), the current Poland-Norway project (EØS) on restoration of mires (2013-2017), and the IMCG European Mires Book project, which he is currently editing. He has always been an excellent coach for foreign students visiting his institute. In 2006 he was appointed a member of the Academy of Science and Letters of Finland, the "country of mires".

It is largely through his efforts that Norway has an excellent mire inventory and a mire conservation system that sets the highest international standards with respect to quality and representation. Of global importance has also been his leading involvement in the International Mire Conservation Group (IMCG), the world organization of mire conservationists. Asbjørn Moen was one of the initiators of IMCG in 1984 and then served from 1984-2006 on its Main Board. His participation in 14 IMCG field symposia in 14 different countries was characterized by his enormous knowledge of ecology and biogeography, which he willingly shared with all participants, particularly young scientists and conservationists. The IMCG Field Symposium, Congress and General Assembly in Norway 1994, organized by Asbjørn, are widely considered the best IMCG events ever, not only because of the excellent organisation and the wide richness of Norwegian peatlands displayed, but also because of its hitherto unequalled international participation (involving participants from both "East" and "West") and policy outreach. The Norway Symposium and its Trondheim Declaration changed the IMCG from a Europe-centred science-orientated organisation to a global power house of policy action for mire conservation.

Asbjørn Moen is a worthy recipient of the Order of St. Olav because of his long-lasting international performance in science and conservation, his outstanding sense of social responsibility and his enormous passion.



### International Conventions and their implications on peat and peatland management



The International Peat Society has collected basic information on the most important International Conventions dealing with biodiversity, climate and ecosystem services, as well as health, water and agriculture issues on a global level. The 54-page booklet describes how they work and why it is important to be involved. Downloadable under: <http://bit.ly>

#### INTERNATIONAL CONVENTIONS, AGENCIES, AGREEMENTS AND PROGRAMMES

Implications for peat and peatland management

### Guidelines on Integrated Management Planning for Peatland Forests in Southeast Asia published

This document is aimed at the practitioner and the planner to provide practical, relevant and userfriendly guidelines for the integrated management planning for peatland forests in Southeast Asia. It focuses on the principles of integrated management planning for peatland forests and provides guidance on dealing with the key drivers of change that underpin peatland degradation and loss in Southeast Asia. It provides general guidance on the planning, development and implementation of integrated plans for peatland forests. Downloadable under [http://www.aseanpeat.net/view\\_file.cfm?fileid=391](http://www.aseanpeat.net/view_file.cfm?fileid=391) (1.4 Mb)

### Major oil palm growers commit to no HCS development during HCS study

Kuala Lumpur, 19 September 2014 - The world's five biggest growers of oil palm, namely Asian Agri, IOI Corporation Berhad, Kuala Lumpur Kepong Berhad, Musim Mas Group and Sime Darby Plantation, have agreed not to develop potential high carbon stock areas with immediate effect, while the High Carbon Stock (HCS) Study ([www.carbonstockstudy.com](http://www.carbonstockstudy.com)) they are funding is underway. The HCS Study will, when completed, provide reliable information on greenhouse gas emissions (GHG) and socio-economic considerations to guide decisions on land conversion to oil palm plantations. The steering committee overseeing the 12-month study is led by leading environmentalist Sir Jonathon Porritt and eminent forest ecologist Dr John Raison. The study is being funded by the five grower companies, agribusiness groups Wilmar International and Cargill and consumer-goods company Unilever.

Dr Raison, who is leading the science study said "This study is both well-resourced and fully independent, with all findings to be publicly available. It will extend earlier HCS work to provide more reliable estimates of GHG emissions from both biomass and soils resulting from the establishment as well as on-going management of oil palm plantations. It will also examine the socio-economic implications of setting varying thresholds for acceptable GHG emissions in different locations. These are critical inputs to guide improved land use planning, and better management of oil palm plantations."



The grower companies and their co-funders in the HCS Study recognise that the findings of the Study will have far reaching implications on developing countries along the equatorial belt, where oil palm is typically grown. The five growers are signatories of the Sustainable Palm Oil Manifesto, which sets higher standards compared to the Roundtable on Sustainable Palm Oil (RSPO). The Manifesto demands increased commitment to sustainable production across the supply chain. This includes 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, and respecting their right to give consent to proposed developments or conservation through the Free, Prior and Informed Consent (FPIC) process. The HCS Study is a key component of the Manifesto.

*Oil palm plantation on peat with typically falling over older trees and newly planted younger trees (Hans Joosten 2014)*

#### **Consultation on EU No Net Loss Initiative**

In the EU, as in other parts of the world, we are continuing to lose biodiversity and with it, the ecosystem services that nature provides to human society. The EU Biodiversity Strategy to 2020 aims to halt biodiversity loss and to conserve ecosystem services. The strategy contains 6 operational targets and 20 associated actions. Action 7 is to ensure no net loss of biodiversity and ecosystem services. Under action 7, the Commission is foreseen to propose, by 2015, an initiative on No Net Loss. The purpose of the consultation is to gather views about the future initiative that the Commission is scheduled to propose in 2015. Contributions are welcomed from citizens, organisations and public authorities. Received contributions will be published on the Internet. The consultation period is open until 17 October 2014. For more information:

[http://ec.europa.eu/environment/consultations/nnl\\_en.htm](http://ec.europa.eu/environment/consultations/nnl_en.htm)

#### **EU LIFE Funding 2014 - 2020 for Environment and Climate**

The LIFE Programme for Environment and Climate Action sets its budget for 2014–2020 to € 3.4 billion. The Commission invites legal persons/entities registered in the EU to submit proposals for the 2014 LIFE Action Grants. For the sub-programme for Environment, this call will cover action grants "Traditional" projects, Preparatory projects, Integrated projects, Technical Assistance projects and Capacity Building projects. For more information: <http://ec.europa.eu/environment/life/funding/life2014/> .

#### **FAO's guidebook "Towards climate-responsible peatlands management" available**

The latest guidebook from FAO's Mitigation of Climate Change in Agriculture (MICCA) Programme Towards climate-responsible peatlands management is now available. Responsible management practices of peatlands can help maintain peatland ecosystem services while sustaining and improving local livelihoods. This publication provides guidance and presents case studies of responsible management practices from different climatic regions. Such practices include rewetting, paludiculture, degraded pasture restoration and forestry. It





is particularly aimed at land managers and other decision makers. Download the publication under: [http://bit.ly/cc\\_peat\\_guide](http://bit.ly/cc_peat_guide)

For hard copies of the publication, complete the online order form via: [http://bit.ly/MICCA9\\_orderform](http://bit.ly/MICCA9_orderform)

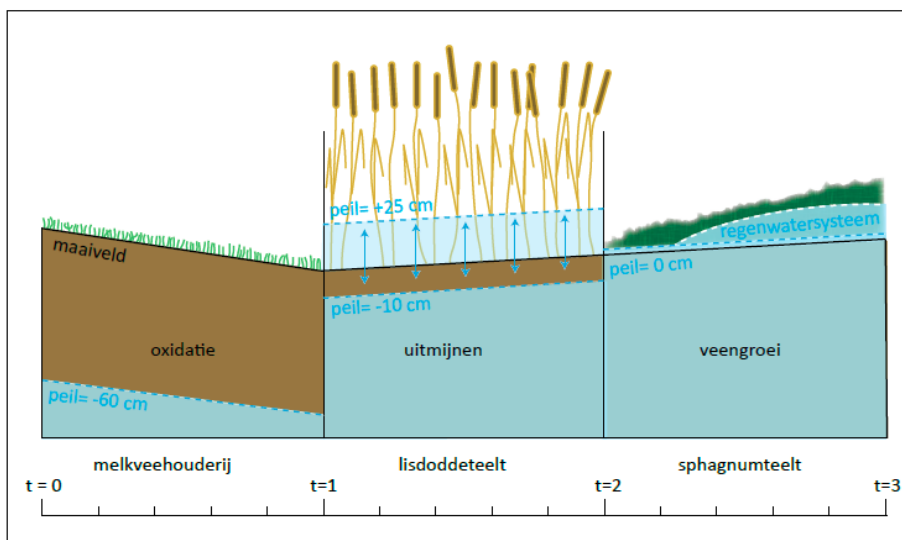
### Rewetting for peatland conservation in the Netherlands

'Vernatting voor veenbehoud. Carbon credits & kansen voor paludicultuur en natte natuur in Noord-Holland' is a Dutch language report on the perspectives of carbon credits and paludiculture for the rewetting of peatlands in the Dutch province of North-Holland (Amsterdam and surroundings).

The social, economic and environmental impact of subsidence in the typical peat meadows of Holland are immense. In the near future, the problems will accumulate as climate change will raise sea water levels and subsidence is estimated to accelerate by 55-70%. Concrete measures have to be taken that not only counteract subsidence but are also financially viable. In the context of the new Provincial Water Plan of North Holland 2016-2021 research has therefore been carried out into the perspectives of transforming current land use (predominantly dairy farming) to more sustainable forms of land use which reduce peat degradation.

This report discusses the perspectives of paludiculture (wet agriculture), wet nature and underwater drainage, makes an estimate of the climate benefits of rewetting, and discusses how the emission reductions could be marketed as carbon credits. Important aspect is whether the sales of carbon credits could make a substantial contribution to covering the costs of rewetting or of underwater drainage. Download under:

<http://www.landschapnoordholland.nl/sites/default/files/download/onderzoek%20%26amp%3B%20databaseher/rapport%20vernatting%20voor%20veenbehoud.pdf>



*Possible transition of dairy farming to wet agriculture on peat meadows. In the first phase after rewetting ample nutrient availability makes the cultivation of Typha a viable option of wet agriculture. After the nutrients have been depleted (via leakage and export of biomass) Sphagnum farming may become possible.*

### FAO Webinar [Challenges and Solutions for Responsible Peatlands Management](#)

The presentation slides of the FAO Webinar 'Challenges and Solutions for Responsible Peatlands Management' from October 1, 2014 are now online:

1. Characteristics of responsible management of peatlands - Armine Avagyan, FAO [Recording - Presentation slides](#)
2. Paludiculture options for responsible utilization of peatlands - Susan Abel, Greifswald University [Recording - Presentation slides](#)



3. Biomass from reeds for energy production in Belarus - Andreas Haberl, Michael Succow Foundation [Recording](#) - [Presentation slides](#)
4. Sustainable grazing for peatlands restoration in China - Zhang Xiaohong, Wetlands China [Recording](#) - [Presentation slides](#)
5. Outlook: Priority actions and requirements for responsible management (policy change, additional funding) - Hans Joosten, Greifswald University [Presentation slides](#) and concluding remarks [Recording](#)

## Peatland conservation relevant papers September 2014

Collected by Hans Joosten. If you want to share papers, please send the title and URL to Hans at [joosten@uni-greifswald.de](mailto:joosten@uni-greifswald.de)

1. A unique guild of Lepidoptera associated with the glacial relict populations of Labrador tea (*Ledum palustre* Linnaeus, 1753) in Central European peatlands (Insecta: Lepidoptera): <http://dialnet.unirioja.es/servlet/articulo?codigo=4746642>
2. Isolated peat bog habitats and their food connections: parasitoids (Hymenoptera: Ichneumonoidea) and their lepidopteran hosts: <http://link.springer.com/article/10.1007%2Fs10841-011-9425-4>
3. Searching for the sister to sedges (*Carex*): resolving relationships in the Cariceae-Dulichieae-Scirpeae clade (Cyperaceae): <http://onlinelibrary.wiley.com/doi/10.1111/boj.12193/abstract?campaign=woletoc>
4. Ploidy in the alpine sedge *Kobresia pygmaea* (Cyperaceae) and related species: combined application of chromosome counts, new microsatellite markers and flow cytometry: <http://onlinelibrary.wiley.com/doi/10.1111/boj.12189/abstract?campaign=woletoc>
5. Dynamics of methane ebullition from a peat monolith revealed from a dynamic flux chamber system: <http://onlinelibrary.wiley.com/enhanced/doi/10.1002/2014JG002654>
6. 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=woletoc>
7. Does dispersal limit beetle re-colonization of restored fenland? A case study using direct measurements of dispersal and genetic analysis: <http://onlinelibrary.wiley.com/doi/10.1111/rec.12118/abstract?campaign=woletoc>
8. Divergent pathways of successional recovery for in situ oil sands exploration drilling pads on wooded moderate-rich fens in Alberta, Canada: <http://onlinelibrary.wiley.com/doi/10.1111/rec.12123/abstract?campaign=woletoc>
9. Modelling the rate of turnover of DOC and POC in a UK, peat-hosted stream – including diurnal cycling in short-residence time systems: <http://onlinelibrary.wiley.com/doi/10.1002/2014JG002671/abstract?campaign=wolacceptedarticle>
10. Soil organic matter to soil organic carbon ratios of peatland soil substrates: <http://www.sciencedirect.com/science/article/pii/S001670611400281X>
11. Seasonal patterns in energy partitioning of two freshwater marsh ecosystems in the Florida Everglades: <http://onlinelibrary.wiley.com/doi/10.1002/2014JG002700/abstract?campaign=woletoc>
12. Investigating carbon flux variability in subtropical peat soils of the Everglades using hydrogeophysical methods: <http://onlinelibrary.wiley.com/doi/10.1002/2013JG002601/abstract?campaign=woletoc>
13. The transition zones (ecotone) between boreal forests and peatlands: Ecological controls on ecosystem productivity along a transition zone between upland black spruce forest and a poor forested fen in central Saskatchewan: <http://www.sciencedirect.com/science/article/pii/S0304380014003573>
14. Permafrost conditions in peatlands regulate magnitude, timing, and chemical composition of catchment dissolved organic carbon export: <http://onlinelibrary.wiley.com/doi/10.1111/gcb.12607/abstract?campaign=woletoc>



15. Climate change impacts on groundwater and dependent ecosystems:  
<http://www.sciencedirect.com/science/article/pii/S0022169413004800>
16. Pleistocene survival, regional genetic structure and interspecific gene flow among three northern peat-mosses: *Sphagnum inexpectatum*, *S. orientale* and *S. miyabeaenum*:  
<http://onlinelibrary.wiley.com/doi/10.1111/jbi.12399/abstract?campaign=wolearlyview>
17. Carbon accumulation in a permafrost polygon peatland: steady long term rates in spite of shifts between dry and wet conditions: <http://onlinelibrary.wiley.com/doi/10.1111/gcb.12742/abstract>
18. Agricultural peatland restoration: effects of land-use change on greenhouse gas (CO<sub>2</sub> and CH<sub>4</sub>) fluxes in the Sacramento-San Joaquin Delta:  
<http://onlinelibrary.wiley.com/doi/10.1111/gcb.12745/abstract?campaign=wolacceptedarticle>
19. Indonesia's contested domains. Deforestation, rehabilitation and conservation-with-development in Central Kalimantan's tropical peatlands:  
<http://www.ingentaconnect.com/content/cfa/ifr/2014/00000016/00000004/art00003>
20. Polygonal tundra geomorphological change in response to warming alters future CO<sub>2</sub> and CH<sub>4</sub> flux on the Barrow Peninsula:  
<http://onlinelibrary.wiley.com/doi/10.1111/gcb.12757/abstract?campaign=wolacceptedarticle>
21. Rehabilitating upland swamps using environmental histories: A case study of the Blue Mountains peat swamps, Eastern Australia:  
<http://onlinelibrary.wiley.com/doi/10.1111/geoa.12068/abstract?campaign=wolearlyview>
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<http://iopscience.iop.org/1748-9326/9/9/094006>

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