Tornetrask mire, North-Sweden, June 10, 2018. Photo: Hans Joosten

IMCG Bulletin: May 2018

INTERNATIONAL MIRE CONSERVATION GROUP

www.imcg.net

Word from the Secretary-General

Dear mire friends

This May issue (also covering parts of June) comes from above the polar circle. In spite of 24 hours of daily sunlight, nature is in early spring and the ice in the palsas still close to the surface. But this will change in the coming weeks, and – even stronger - in the years to come. In the Arctic fast climatic changes occur, with not fully understood consequences for peatland development and possible climate feedbacks.
This Bulletin again contains news from all over the world and again holds nominations for the new Main Board. Please consider to nominate yourself: **nomination closes by July 6**, and we still need candidates to secure adequate gender, age, expertise and geographic balance to cover the wide fields of global mire conservation!

Thanks for sending news, photographs, papers and other contributions (including resolutions etc. for the IMCG General Assembly) for the next Bulletin by July 6, 2018 to Hans Joosten at joosten@uni-greifswald.de.

Contents of this Bulletin

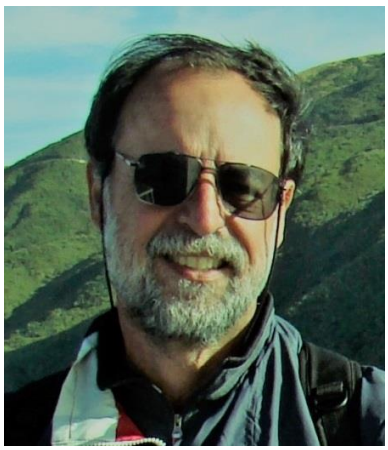
IMCG issues

2018 IMCG Field Symposium (registration closed)
Arrival: Monday August 20, Amsterdam, departure: Saturday, September 1, Amsterdam.
IMCG Symposium 22 August: NIOZ, Island of Texel; IMCG General Assembly: 31 August in Utrecht
Field excursions: Tuesday 21 (Island of Texel) and August 23-31. Number of participants: 50 max. (Keep an eye on the website: http://www.imcg.net/pages/events/imcg-2018.php

IMCG General Assembly 31 August 2018,
On the IMCG General Assembly 2018 in the Netherlands only a limited number of IMCG members will be present, and only limited time will be available. Therefore we will arrange the discussions and decisions largely by internet and email. The January Bulletin contained the preliminary agenda for this Assembly and in the beginning of July 20018 we will produce a Bulletin containing the documents for the Assembly and all information on how the voting per email or snailmail will be done. We will furthermore open a special place on the website where discussion papers can be made available. Therefore: provide the IMCG secretariat with additional agenda points and submit your background papers, concrete proposals, draft resolutions, contributions for discussion, nominations for the IMCG Main Board and for Honorary Life membership, etc. until 30 June 2018. Send the material in as soon as possible to joosten@uni-greifswald.de– the sooner the better – so that we can arrange the democratic procedures in a smooth way.

Main Board nominations
Here again some nominations for the new IMCG Main Board. Don't hesitate to run for MB member: we need 15 members for a full Main Board and we should again strive for a fair representation with respect to geography, expertise, gender, and age.

Rodolfo Iturraspe (Argentina, male, 63 years)
Titular Professor at the National University of Tierra del Fuego (Ushuaia, Argentina). Nowadays he is the highest Authority of the Science and Technology Area at this University. Research focus on mire hydrology, peatland ecosystem services and regional peatland distribution. IMCG member since 2000.



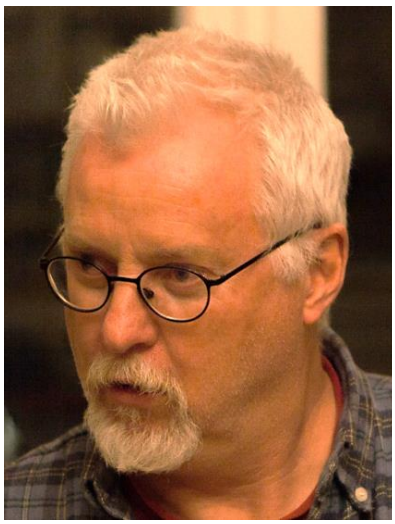
Current member of the IMCG Main Board and the Executive Board. Participated in several IMCG Field Symposia, coordinated the 2005 IMCG Tierra del Fuego Field Symposium and was one of the organizers of the 2012 IMCG Andes Field Symposium in Ecuador and Colombia. He works for peatland conservation in Tierra del Fuego, together with Latin American specialists. His group achieved the endorsement of a new regulation for peat mining zonation and wise use of mires in Tierra del Fuego. Responsible for the designation of the Southernmost Ramsar site in the word, which includes the Mires of Andorra Valley. Project leader for hydrological restauration of the peatland at the Río Valdés Protected Area. Author of several papers and books related to regional peatlands. See more information at www.researchgate.net

Line Rochefort (Canada, female, 57 years)
Graduated from Université Laval (B.Sc.), University of Alberta (M.Sc.) and University of Cambridge (Ph.D.), I became a full professor in the Department of Plant Sciences at Université Laval (Québec, Canada). My academic and professional career took me around the world, for research in collaboration with colleagues, as an invited speaker, as a conference organizer, or as a consultant. To improve the environment following degradation caused by human activities or minimize impacts on the environments associated with economic activities has always been a driver underlining the choice of my research topics. With our increase awareness of the goods and ecological services beneficial to humans provided by natural ecosystems, it came naturally to change my interests from studying the impacts of humans on natural ecosystems (impacts of acid rain in peatlands, impacts of scenarios of increased global atmospheric CO_2 on global plant biodiversity) to specializing

in the field of restoration ecology In this context, it seemed just natural to promote ecological restoration of block-cut / harvested peatlands as a means of sustaining the diversity of life on Earth and re-establishing the important function of C accumulation that peatlands can do so efficiently in the century scale time frame. Indeed, I founded in 1992-1993 the Peatland Ecology Research Group (PERG) which brings together researchers from several universities, Canadian industrial peat partners, and federal and provincial government agencies. And with the PERG, I instigated the development of techniques for the restoration of mires after peat extraction. It is my hope that the science basis of peatland restoration will ensure constant ecological success from the different applied restoration projects to come and lead to an ecologically healthy relationship between nature and culture.

Hans Joosten (Germany/Netherlands, male, 63 years)

Studied biology and worked as university researcher and policy officer (Ministry of Agriculture) in the Netherlands. Since 1996 head of the Department of Peatland Studies and Palaeoecology of Greifswald University (Germany), partner in the Greifswald Mire Centre, since 2008 as an Extraordinary Professor.



Since 2000 Secretary-General of IMCG for which he co-edited the books 'Wise use of mires and peatlands' (2002) and 'Mires and peatlands of Europe' (2017) and an abundance of IMCG Newsletters and Bulletins. Co-edited the books 'Paludiculture – productive use of wet peatlands' and 'Peatland restoration and ecosystem services' (2016). Intensively involved in UNFCCC negotiations and IPCC guidance development, especially with respect to accounting for emissions from organic soils, and in FAO in advancing climate-responsible peatland management. Steering committee member of the Global Peatlands Initiative. Participated in the 'International Peat Mapping Team', which won the 2018 $1 million Indonesian Peat Prize. Hans' agenda for international mire conservation is: 1) Keep wet peatlands wet, 2) Make drained peatlands wet again, 3) If you need to use them, use them wet (paludiculture).

Faizal Parish (UK/Malaysia, male, 57 years)

Wetland ecologist with more than 35 years' experience in assessment and management of peat swamp forests, mangroves and rivers. Director of the Global Environment Centre, a Malaysian non-profit organization working throughout East and Southeast Asia on peatland, forest and river management. Malaysian Permanent Resident

and living in Malaysia since 1983. Working for nearly 20 years with the ASEAN Member States to promote sustainable peatland management and founder with the ASEAN Secretariat of the ASEAN Peatland Management Initiative in 2002. He is currently the Senior Technical Advisor of the ASEAN Programme on Sustainable Management of Peatland Ecosystems 2014-2020 (APSMPE). He co-chairs the RSPO Peatland Working Group (2009-2012 and 2017-2020) and is co-author of two RSPO Manuals on BMPs for oil palm cultivation on peatlands and conservation and rehabilitation of peatlands. Actively involved in IMCG activities since 2004 and organised the IMCG Field Symposium in Malaysia/Brunei in 2016.

Wiktor Kotowski (Poland, male, 46 years)

Connected to peatland science for over 20 years, starting with MSc in environmental biology on fen plant ecology (1996, University of Warsaw), through PhD in natural sciences on fen vegetation processes (2002, University of Groningen) and 'habilitation' on the use of functional plant ecology in fen conservation and restoration (2015, University of Warsaw). Currently, I work as assistant professor at the University of Warsaw, Institute of Botany, where I continue to study fen vegetation processes, especially in relation to ecosystem stability and preconditions of peat formation. I lecture vegetation ecology, mire ecology and conservation, and conservation policy. My publication record includes c. 50 papers in the field of ecology and nature conservation, most of them connected to mires, especially fens and a few book chapters in international monographs. In Poland, I try to combine my scientific work with a voluntary involvement in the board of Wetland Conservation Centre (CMok), a society established in 2002 to actively protect wetlands and enhance public awareness about their importance; since 2016 CMok is a member of the European Association of Wetlands International. I am a member of IMCG since 1999; in 2010 I joined the organisation of the IMCG Field Symposium in Poland.

I have participated in >10 mire-related conservation and research projects and co-ordinated several of them, including recently the project MIRACLE (Mires & Climate), currently REPEAT (on the prospects of restoring peat formation in fens) and CLEARANCE (on multifunctional use of wetland buffer zones). I think that effective mire conservation has to address local constraints and opportunities and use a transdisciplinary approach to choose best-fitted strategies. This can best be achieved through an active partnership of scientists and practitioners, and a dialogue with decision makers. I see the role of IMCG as a guardian of mires preservation and an advocate of their restoration worldwide. Personally, I feel most indebted for the involvement of IMCG in the protection of the precious Rospuda mire in Poland against a road construction, which certainly helped to halt the project in 2009.

Franziska Tanneberger (Germany, female, 40 years)

Based at Greifswald Mire Centre (GMC) in Germany and IMCG member since 2003. Studied landscape ecology in Greifswald (DE) and Reading (UK) with diploma thesis on peatlands in Western Siberia (2003). PhD about habitats of Aquatic Warbler, a characteristic fen mire bird (2008). Over the last 10 years, experience in peatland research and restoration mainly in Germany, Russia, Belarus, Poland, and Lithuania, focusing on fen ecology, especially biodiversity, mowing management and peat formation. Contributed to 20 articles in peer-reviewed journals. I coordinate annual conservation farming, monitoring and research of 150 ha of wet peatlands for a small NE-German NGO since 2005. In 2012-2017, I helped finalising the IMCG book "Mires and peatlands of Europe" with Hans Joosten and Asbjørn Moen as co-editors and 134 peatland scientists from all over Europe. Being part of this network was and is very stimulating and enriching. Finalised the “Aquatic Warbler conservation handbook” with Justyna Kubacka as co-editor and 48 authors from Europe and Africa in 2018. Along the scientific work and jointly with Greta Gaudig, I am Head of the GMC, which combines the experience of more than 50 peatland experts of various disciplines.

The GMC coordinates the IMCG Global Peatland Database (GPD), the Database of Potential Paludiculture Plants (DPPP), and the Peatland and Nature Conservation International Library (PeNCIL). GMC is, together with IMCG, member of the Global Peatlands Initiative (GPI). Representing a generation of young (well…☺) GMC peatland scientists and conservationists, I would like to support IMCG in maintaining a strong position in the global fight for preserving undrained peatlands and restoring degraded ones. I will bring in the GMC’s experience in bridging science, policy and practice with regard to peatlands, and I am looking forward to learning from others within the IMCG network.

Mires and Peat

In May 2018 the following papers were published in our scientific journal Mires and Peat:

- CNP stoichiometry and productivity limitations in high-altitude wetland ecosystems of the Eastern Pamir. [M. Mętrak, P. Chibowski, M. Sulwiński, P. Pawlikowski & M. Suska-Malawska] Volume 21: Article 09 http://mires-and-peat.net/media/map21/map_21_09.pdf
- Sphagnum restoration on degraded blanket and raised bogs in the UK using micropropagated source material: a review of progress. [S.J.M Caporn, A.E. Rosenburgh, A.T. Keightley, S.L. Hinde, J.L. Riggs, M. Buckler & N.A. Wright] Volume 20: Article 09 http://mires-and-peat.net/media/map20/map_20_09.pdf

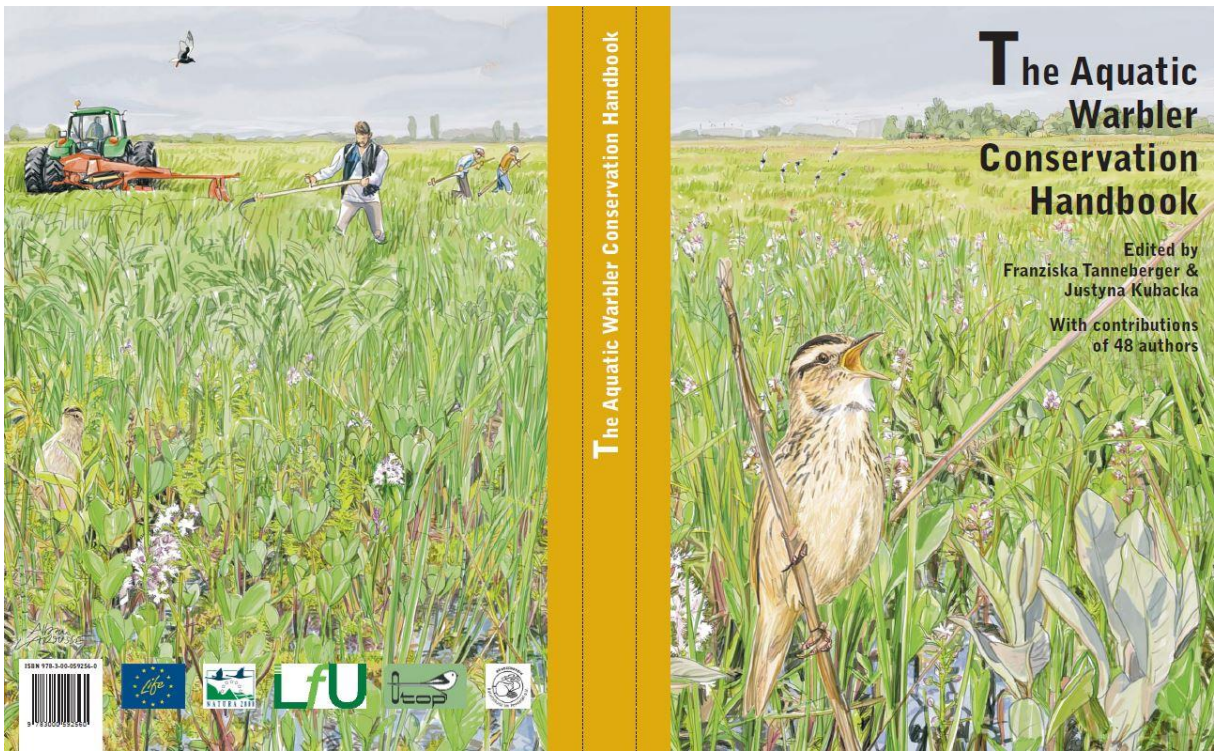
Find the journal online at http://mires-and-peat.net/ . Send your new manuscripts to Editor-in-Chief Olivia Bragg: o.m.bragg@dundee.ac.uk

Peatland news

Global

New Aquatic Warbler handbook summarises ecology, management and conservation

For twenty years the Aquatic Warbler Conservation Team (AWCT) is putting its effort into the threatened peatland species and there is quite some reason to celebrate. The team has compiled the Aquatic Warbler Conservation Handbook which was launched at the 20th anniversary celebration 12th-15th April in Brodowin (Germany). The book, edited by Franziska Tanneberger and Justyna Kubacka, summarises the current knowledge on ecology, habitat management and conservation of the Aquatic Warbler. The AWCT is a small and informal network of experts for this mire species from almost all range countries – and a success story: Founded in 1998 in Brodowin by Martin Flade, who is its chairman until today, it promoted a Memorandum of Understanding for the protection of the globally threatened Aquatic Warbler (*Acrocephalus paludicola*) under the Bonn Convention (CMS), which was signed in 2003. The team has initiated 8 EU LIFE projects targeting the species' conservation as well as numerous other projects. Annual AWCT expeditions to breeding or wintering sites are a tradition since the very beginning and help to form a dedicated, inspiring team. The book is downloadable under https://t.co/HsFa101t1L



Nature's Conscience: The Life and Legacy of Derek Ratcliffe

The book about Derek Ratcliffe (with ample attention to peatland conservation including the Flow Country battle) is in danger of being pulped, so is now being offered at a very low price (8 UK £ for a hardback and 5 £ for a softback plus postage) See for the book: http://langford-press.co.uk/book/natures-conscience-the-life-and-legacy-of-derek-ratcliffe/ If you are interested, contact Angela Langford Angela.Langford@btconnect.com

IPS is seeking Secretary General

The International Peatland Society is seeking to recruit a Secretary General as its Chief Executive. The person appointed will be expected to take the lead in implementing the strategy, developing new services and new sources of income, and strengthening existing services; and will take a leading part in the development of strategy and policy. More information under: http://www.peatlands.org/sg2018

Deforestation for oil palm in Sabah (Malaysia). Photo: Hans Joosten

Time is running out for palm oil certification: a commentary

The recent report "The False Promise of Certification" of Changing Markets Foundation analyzed the merits of various certification schemes for palm oil, including the Roundtable for Sustainable Palm Oil (RSPO), Roundtable for Sustainable Biomaterials (RSB), Rainforest Alliance & Sustainable Agriculture Network, International Sustainability and Carbon Certification (ISCC), and the two palm oil schemes established by the Indonesian (ISPO) and Malaysian (MSPO) governments. While there is some variation between them, none of the schemes showed to have been very effective in slowing down deforestation. The range of schemes, and the existence of different modules within each scheme that allow members to opt for varying degrees of ambition, lead to a watering down of sustainability outcomes. RSB and ISCC offer several different modules depending on which market a company wants to export to and whether its palm oil is destined for food or biofuels. The RSPO has chosen to develop a voluntary add-on module (RSPO-NEXT) to drive more sustainable practices for a small number of its members, instead of prohibiting expansion of palm oil cultivation on forested lands and peatlands across the board.

While not one of the schemes is driving a race to the top by having one ambitious standard, MSPO and ISPO were found to represent a race to the bottom, because they fail to meet even basic requirements for international multi-stakeholder certification, such as third-party audit and transparency. RSPO is often referred to as the best scheme in the sector and has certified over 19 percent of global palm oil production. But the report identified several shortcomings: it allows the conversion of secondary forests and the draining of peatlands, it does not require a reduction in greenhouse gas emissions, and it has not prevented human and labor rights violations. A recent study revealed that, while RSPO has led to a small reduction in deforestation, it mostly certified older plantations where deforestation had already happened prior to certification. It also showed that RSPO certification had no positive impact on peatland draining and forest fires. This is presumably because of its failure to prohibit these activities.

Because of their significant deficiencies, the report proposes that the least ambitious schemes (MSPO and ISPO) should be abolished. Despite the clear shortcomings of the RSPO, it concludes that there is a final

opportunity for reform in its 2018 review of the standard. The RSPO should focus on quality rather than quantity and only certify palm oil that is free of deforestation, peatland drainage, and human rights violations.
The report proposes two sets of measures to increase sustainability in the sector. First, the biggest palm oil importers should reduce their demand and adopt measures to ensure their imports are free from deforestation. The big elephant in the room is the European Union's (EU) biofuels policy, as almost 60 percent of palm oil in Europe is burned for transport and energy. Secondly, for producing countries, the report recommends several measures that include implementation and effective enforcement of forest conservation policies, including the introduction of an immediate moratorium on deforestation and peatland conversion. Progressive companies can lead this effort, similar to what happened with the adoption of the successful soy moratorium in the Brazilian Amazon. Instead of the uncontrolled expansion of palm plantations to forested lands, companies and governments should invest in efficiency improvements and channel new plantations to non-forested areas and on degraded land.
While reformed certification schemes could become a tool for consumers to identify more sustainable products again in the future, we must recognize that they cannot and should not replace government regulations and responsible corporate behavior. For too long, certification has been considered as the one and only "possible and realistic" option for addressing the impacts of palm oil cultivation, but the fact is: we are running out of time. We need to focus our efforts on real solutions that protect forests and majestic species that depend on them. *Read the complete commentary of Nusa Urbancic under:*

- https://news.mongabay.com/2018/06/time-is-running-out-for-palm-oil-certification-commentary/

Monitoring progress under the IUCN Resolution 43 'Securing the future of global peatlands'
The IUCN UK Peatland Programme in collaboration with the IUCN CEM Peatlands Specialist Group and Newcastle University is monitoring progress under the IUCN Resolution 43, Securing the future of global peatlands, agreed in 2016 at the World Conservation Congress. The resolution makes a recommendation that member states seek to develop and implement strategies, guided by the 10 actions recommended in the FAO 'guidance for climate change mitigation by conservation, rehabilitation and sustainable use'.
We have sent out a questionnaire (link below) to all IUCN National Committees but were hoping to reach out to other international peatland colleagues who might be aware of whether national strategies for peatlands exist in your country. You can complete the survey (below) until 29th June 2018 which will take between 20-40 minutes depending on how much detail you are able or willing to provide. If you do not have any peatland strategy or policy in place, the survey will take very little time. Please still answer the relevant questions so we have a baseline for your country. If you are not personally able to complete this questionnaire, please feel free to forward to another suitable individual(s) within your country. SURVEY LINK https://www.surveymonkey.co.uk/r/IUCNRes43Survey. Alternatively, if you do not have time to look at the questionnaire, a quick e-mail in response (emma.goodyer@iucn.org.uk) with any web-links or relevant attachments would be very much appreciated.

Further reads and views:

- https://www.scientificamerica
- https://www.peat-portal.net/

Africa

To protect the Congolese peatlands, protect local land rights (commentary by Bart Crezee)
Sometime in March, I found myself trudging forward in a remote swamp in the heart of the Congo rainforest. It was our final day. In the two weeks prior, our team of British and Congolese researchers, together with men from the local village of Lokolama, had cut a 4-kilometer trail into this dense, swampy forest. Lokolama, a small, remote village in the Équateur province of northwestern Democratic Republic of Congo (DRC), made headlines last year when researchers from the University of Leeds in the U.K., together with campaigners from Greenpeace, discovered some very deep peat deposits near the village. Even on the outer edge of the swamp, the team found more than 3 meters of peat under their feet. Their measurements confirmed that the largest tropical peatland complex in the world, described in early 2017 in the journal *Nature*, extends all the way from the neighboring Republic of Congo into the DRC. At the University of Leeds, we wondered whether these discoveries were just the beginning. If we could already find 3 meters of peat just inside the forest, how much

more could we find deep in the swamp's interior? So earlier this year, we returned for three months of fieldwork, probing farther into the peatland than before. Already after 1 kilometer, we measured 4.5 meters of peat. Four kilometers down the trail, our measurements had plumbed to more than 5 meters. And when we added those last few hundred meters on our final day in the swamp, we found possibly 6 meters of peat underground. I say possibly because, to know the exact peat depths, we need to await ongoing laboratory analysis of peat samples that we brought back to the U.K. But what we do know so far is that this peatland in the DRC becomes much deeper, much quicker than across the border in the Republic of Congo. This is crucial information because it means that the peatland might hold even more carbon than previously thought.

Exactly how much carbon depends on the full extent of the peatland. To get a better idea of the peatland's distribution, we also visited three other locations in the DRC, spread out along several eastern tributaries of the Congo River. Up to that point, only large peat basins in between the bigger rivers had been studied. We found that in the DRC, extensive peat deposits that reach to a depth of at least 4 meters exist in the river floodplains as well. At all the sites that we visited, we found peat exactly where it was predicted to be by the 2017 *Nature* study. Some of these sites were dozens of kilometers away from Lokolama and hundreds of kilometers away from the initial research sites in the Republic of Congo, leaving little doubt that the largest tropical peatland complex in the world is indeed unimaginably vast.

Peat swamp forest in the Republic of Congo. Photo: Hans Joosten.

Yet while I was wading through the mud, the future of these very forests was on the table in Kinshasa and Brazzaville, the respective capitals of the DRC and the Republic of Congo. In early February, the DRC's environment minister, Amy Ambatobe, awarded more than half a million hectares of illegal logging concessions to two Chinese-owned companies, which partly overlap with the newly discovered peatlands. It was a clear breach of the country's 16-year-old moratorium on new logging concessions. Later in February, the government signaled its intention to lift the moratorium altogether. The announcements led to widespread concern among conservation groups and human rights activists.

At the moment, about 29,000 km^2 of the total peatland area officially sits within a logging concession, although actual logging activities in these swamp forests have so far been limited due to their inaccessibility and associated high costs. However, there is ample evidence from across the tropics that once selective logging activities begin, they will trigger a chain of detrimental events. Road construction will allow access to otherwise remote forest areas, resulting indirectly in further forest degradation and ultimately in the clearing of the

forest for large-scale agriculture. In other words, selective logging can act as a precursor to agriculture plantations for crops such as oil palm, and thus leads to large-scale deforestation.

It is unclear how the roads themselves will impact the critical hydrological balance on which the peat swamps' very existence depends. But a new study published in the journal *Mitigation and Adaptation Strategies for Global Change* in January 2018 points to the likelihood that roads act as barriers to water flow. These blockages can cause major disruptions in the form of flood erosion or drying out of the peatlands. The paper also warns against a future scenario in which high commodity prices (particularly for palm oil), improved road and river access to markets, together with higher temperatures and more frequent droughts due to climate change, could work together to replicate the conditions that led to the catastrophic peatland fires seen in Indonesia during the 1997 and 2015 El Nino events.

As a case in point, another report, aptly titled "The Coming Storm," came out as well while I was trekking my way through the swamps. In the report, the London-based investigative non-profit Earthsight showed how one of the Republic of Congo's largest logging firms acquired a license for an oil palm plantation of 4,700 km^2, which largely overlaps with peatlands in the Republic of Congo. The case was fraught with illegalities, and it highlights the close connections between logging and palm oil companies. The report warns that thousands more hectares of forest are at risk of being lost in the Congo Basin due to improper forest governance and a lack of transparency.

This "coming storm" doesn't have to be. The presence of peatlands with vast quantities of carbon could attract international climate change funding for the Congo rainforest. While there is a lot of discussion on the effectiveness and risks of individual measures, it is clear that results-based payments in the form of REDD+, voluntary carbon offset schemes, or financial support through the U.N.'s Green Climate Fund could prove crucial in protecting the Congo Basin's peatlands.

However, these efforts will only succeed with a participatory approach that fully includes local communities and indigenous peoples. Recent research by the Rights and Resources Initiative demonstrated that the DRC's first REDD+ initiatives in Mai-Ndombe province do not adequately respect the rights of local peoples. What is more, they are actually failing to protect their forests. The report's author argues for giving local communities the opportunity to be REDD+ holders themselves and to let them benefit directly from REDD+ money. For this strategy to work, these communities will have to obtain secure land rights to their forests, which research has shown to be one of the most cost-effective measures to prevent deforestation. The DRC's Forest Code, the country's main legislation regulating how it uses its forests, gives communities the chance to secure legal rights to 500 km^2 of forest that they already traditionally own, yet few land titles have been granted so far. Now, it is up to the DRC government to put words into action and deliver on these rights.

Fortunately, when I returned from the forest, I was greeted by some good news as well. Ambatobe, the same DRC minister who had illegally granted logging concessions just a few weeks before, had just signed a historic agreement with his counterparts from the Republic of Congo and Indonesia. In the Brazzaville Declaration, backed by U.N. Environment Programme and the Global Peatlands Initiative, the three environment ministers pledged to work together to protect the Congolese peatlands from unregulated land use to prevent their drainage and degradation.

However, the government of the DRC has not yet moved to cancel the illegally awarded logging concessions. The Brazzaville agreement also does not explicitly mention the land rights of local communities that live in these areas — communities like those in Lokolama, who know the swamp forests best. Without them, I would never have been able to study the deep peatlands that can be found in the DRC. And without a government that fully respects their rights, these forest guardians will not be able to continue to protect the peatlands they so depend on.

- https://news.mongabay.com/2018/06/to-protect-the-congolese-peatlands-protect-local-land-rights-commentary/

South Africa

National Wetlands Indaba

8-11 October 2018, Kimberley, Northern Cape, with focus on the uniqueness of dryland wetlands www.nationalwetlandsindaba2018.com

Deadline for submissions is 15 June 2018, Early Bird registration expires on 30 June 2018.

SA palmiet wetlands drying up fast, may be lost by 2065

South Africa's palmiet (*Prionium serratum*) wetlands are in such a critical state that if urgent action is not taken now "they may soon disappear right before our very eyes", according to Stellenbosch University research. “It’s been reported that over 65 % of South Africa’s wetlands and associated river systems have been damaged and 50 % estimated to have been destroyed. If steps are not taken immediately to restore palmiet wetlands threatened with erosion, it is possible that these wetlands will be drained or lost by 2065,” wetland ecologist and postdoctoral researcher in the department of conservation ecology and entomology at Stellenbosch University Dr Alanna Rebelo said on June, 3. Her research focused on the Theewaterskloof and Goukou wetlands in the Western Cape as well as the Kromme wetland in the Eastern Cape.

Prionium serratum (L.f.) Drège *on the Vet River near Riversdale, Cape Province, South Africa. From: Marloth (1915): The Flora of South Africa" Vol. 4*

Located in the Cape Floristic Region, one of the world’s biodiversity hotspots, these wetlands had a remarkably similar vegetation composition. Two of these palmiet wetlands are situated upstream of large municipal reservoirs providing water for Cape Town and Port Elizabeth. Rebelo used a combination of aerial photograph analysis, remote-sensing and modelling techniques to map the current and historical distribution of wetlands and what remained of them, how their spatial distribution had changed over time, and what the main drivers of this change were. She also wanted to determine how wetlands function in providing ecosystem services. Rebelo said of all ecosystems, wetlands were considered one of the richest in terms of services provided. “They attenuate floods, mitigate water pollution, retain sediment, provide clean water and food for local communities, and capture and store atmospheric carbon dioxide. They also have valuable peat-beds beneath them which, if degraded, will contribute to global warming.” Rebelo said that despite this, the complexity of wetland ecology had resulted in them being the least studied. South Africa’s wetlands were not well understood and many were in decline.

“The remaining palmiet wetlands are threatened by a plethora of different problems such as being removed to make place for agriculture, gully or channel erosion, pollution from agricultural runoff like lime and fertilizers, invasion by alien vegetation, increasingly extreme flooding, and inappropriate fire regimes. Bisecting roads also have a negatively impact because they cause knick-points in wetland systems, often resulting in erosion, which eventually drains the wetland. Once this erosion begins, it is impossible for the system to recover without active rehabilitation, which is costly,” Rebelo said. The value of palmiet wetlands in terms of water purification, among other ecosystem services, had been overlooked in favour of their potential for food provision. “As a result, many palmiet wetlands have been ploughed up for agriculture, either for orchards or grazing.” She said it was unfortunate that landowners often believed that palmiet choked rivers and should be removed. “It is in ‘choking’ rivers that palmiet is able to provide many important ecosystem services to landowners, and to others further downstream. These include slowing the force of dangerous floods, thereby minimising infrastructural damage, allowing deposition of sediment which then would not accumulate in the dam, and in dispersing the movement of water, and in doing so providing a filtration service and improving water quality.”

Rebelo said her findings highlighted not only the uniqueness and value of palmiet wetlands, but also their decline and made a case for their conservation and restoration. “It is hoped that the findings of my study will feed into conservation and restoration planning, and possibly policy, with real implications for the protection of ecosystems and biodiversity. The protection and restoration of our wetlands should be a national priority.”

- https://www.iol.co.za/news/south-africa/western-cape/sa-palmiet-wetlands-drying-up-fast-will-be-lost-by-2065-researcher-15290391

Asia

Indonesia

Over 200 Indonesian community leaders speak out against the use of palm oil for biofuels

Hundreds of Indonesian leaders of indigenous communities, farmers' unions, smallholder organizations, human rights groups and environmental NGOs have signed an open letter to the EU Presidency, Europe's Heads of State and the President of the Republic of Indonesia against the use of palm oil in biofuels. The community leaders say that the problems associated with oil palm plantation development are not just environmental such as deforestation and other ecological problems, but are also social issues such as land grabbing, human rights abuses, workers' exploitation and corruption. They stressed that the Indonesian government continues to use a positive justification for the use of palm oil in biofuels, which will worsen the situation and further exacerbate the problems linked to oil palm plantations in the country. The 236 Indonesian community leaders said: "The EU should ensure that renewable energy is only sourced from businesses that are eco-friendly, equitable and respectful of human rights. Palm oil-based biodiesel clearly does not meet these principles, as shown by the emergence of various social, economic and environmental problems."

- https://www.transportenvironment.org/press/over-200-indonesian-community-leaders-speak-out-against-use-palm-oil-biofuels

A pooling area for processed wood, which also serves as one of at least six camps for illegal loggers inside PT MPK's concession in Sungai Putri, Ketapang, West Kalimantan.Photo: Greenpeace.

Illegal logging persists in Borneo orangutan habitat despite government ban

At least six illegal logging camps have sprung up in Sungai Putri, a 57,000 hectare peatland forest and one of the last orangutan strongholds in the world, a Greenpeace investigation has revealed. The environmental group's probe in March this year found the camps inside a concession held by timber company PT Mohairson Pawan Khatulistiwa (MPK), in the Ketapang district of West Kalimantan province. The concession itself covers 484 km^2 of land, or 85 % of the Sungai Putri landscape, home to an estimated 950 to 1,200 critically endangered Bornean orangutans (*Pongo pygmaeus*), "one of the largest unprotected [orangutan] populations in the whole of Indonesia," according to a 2016 joint report by the Borneo Nature Foundation and International Animal Rescue. Greenpeace said logging was taking place at night, including in locations where orangutan nests were found, and ending just before dawn as trucks arrived to transport the woodpiles to nearby sawmills and

furniture shops. “This is a major embarrassment for the Indonesian government, which has consistently promised to protect Sungai Putri,” Greenpeace campaigner Ratri Kusumohartono said in a statement.
In 2015, the Indonesian government approved MPK’s plans to log in a 48,000ha concession, much of which is on very deep peatland that was in theory protected by legislation. In the same year, satellite analysis recorded 7,965 fire hotspots across Sungai Putri landscape and surroundings. The following year, the government strengthened its peatland protection laws, following a major outbreak of forest fires caused in part by deforestation and peatland development. Despite this, MPK continued to develop the concession, constructing several drainage canals through the peat. In 2017, Greenpeace Indonesia raised this with the Minister of Environment and Forestry. In March 2017, Minister Siti Nurbaya instructed the company to stop its operations and fill in the canal. It has yet to do so, and heavy machinery remains in place.
The Greenpeace exposé is the second investigation that has revealed continued commercial exploitation of the Sungai Putri forest in defiance of the government order for a halt to such activities. In November last year, the NGO published photos that showed an extensive canal full of water, alongside excavators and pulpwood tree seedlings being planted. The new evidence produced by Greenpeace comes after the Indonesian environment and forestry minister called for the company responsible to cease operations in March. “The government cannot let this stand — it must uphold the law and ensure the full and permanent protection of this beautiful and important forest,” Ratri said. Greenpeace noted it was unclear whether PT MPK was carrying out the logging or if other parties were taking advantage of roads built by the company to further encroach on the forest and orangutan habitat. PT MPK, linked to a Chinese investment firm, obtained permits in 2008 from the government to log the area. Logging activities are strongly supported by the provincial government as a means of boosting investment in the region.

- https://www.greenpeace.org/international/press-release/16846/over-1000-orangutans-threatened-by-illegal-operations-in-indonesia/
- https://news.mongabay.com/2018/06/illegal-logging-persists-in-borneo-orangutan-habitat-despite-government-ban/
- Photos: https://media.greenpeace.org/CS.aspx?VP3=SearchResult&ALID=27MZIFJXAA22S

See also spectacular footage of a wild orangutan fighting a bulldozer: https://news.mongabay.com/2018/06/facebook-video-shows-orangutan-defending-forest-against-bulldozer/

Mongolia

Mongolia battles to save its peatlands

For millennia the wetlands of the Orkhon Valley have nourished the livestock and livelihoods of herders like Chimedregzen Nadmid, who has lived there all his life (see IMCG Bulletin March 2018). He remembers when the land was so boggy that riding a horse was impossible. The soil absorbed water like a sponge, forming a vast plain of peatlands that sprouted thick grass and fed lakes and rivers. It was harsh terrain but ideal pastureland. Then a couple of decades ago it changed. Marshy wetlands shrank and grass vanished. The corrugated landscape flattened and dried out. “The first thing I noticed was the falling water level,” says Chimed, as he is known. “I knew I had to do something.”
A tenuous ecological balance is fracturing. Peatlands are Mongolia’s last fertile pastures. Undisturbed, they absorb water from melting snow and rain which they filter and release into rivers and lakes. They prevent soil erosion and maintain groundwater levels that sustain crops and forests while staving off desertification. But the area covered by peat in Mongolia has almost halved in the past 50 years. This has had a dramatic impact on permafrost. When peat degrades, permafrost loses a protective layer insulating it from the elements and begins to thaw. Mongolia now has around a third less permafrost than it did 50 years ago. The economic implications are alarming. Permafrost layers are a significant store of freshwater in Mongolia. Agriculture, which contributes more than 10% of the country’s gross domestic product and employs nearly one-third of workers, depends on plentiful water and feedstock. Animal husbandry, the core business of most herders, accounts for the vast majority of agricultural production. Livestock numbers in Mongolia have doubled to more than 60 million since the 1990s. This, coupled with several droughts, has caused significant land degradation, forcing livestock to move to peatlands in search of productive pastures. “The problem is that the number of cattle on peatlands is 20 or 30 times higher than other areas,” said Tatiana Minayeva, a peatlands expert at Wetlands International. “It is estimated that 80% of Mongolia’s cattle are concentrated on natural and degraded peatlands, which cover only 2% of the country’s land area.”

Herder in the Orkhon Valley, Mongolia. Photo: Hans Joosten.

Peatland degradation has long-term climate implications for Mongolia, and for the global climate. As they degrade and permafrost thaws, ancient organic carbon is released. Mongolia's high elevation and cold, dry weather leave it acutely vulnerable to a warming climate. Already, air temperature has risen by an average of more than 2°C since 1940, according to the government's Information and Research Institute of Meteorology, Hydrology and Environment. There are fewer extremely cold days during winter and summer brings once unthinkable heatwaves. Many small lakes have dried up, and ice cover on rivers has thinned by 35 centimeters. Temperatures will climb even higher, according to climate models, depending on the level of greenhouse gas emissions. In a high-emission scenario, temperatures in Mongolia could soar by as much as 6°C between 2016 and 2035. This would worsen peatland degradation, releasing even more carbon and speeding up climate change. Mongolia is the world's 7th-biggest global emitter of CO_2 from degrading peatlands.

Chimed's initial conservation efforts at peatlands near his home an hour's drive from Kharkhorin, the country's 13th century capital, were motivated by a need to save water. They brought mixed results. Wooden fences he built around springs collapsed when the water froze. A couple of years ago Chimed enlisted local herder families to help build a small dam to water their livestock. It worked for a time, until animals trampled the earthen banks into the mud. In 2015, the Asian Development Bank joined with Wetlands International to build steel fences around springs feeding the peatlands that had been almost completely destroyed by overgrazing and trampling by cattle. Permafrost and hydrology experts discovered that significant ground water storage from permafrost thaw was discharging as springs at the surface. The presence of a water source spurred efforts to restore peatlands near Chimed's home. As fences blocked entry to the springs for herders and livestock, a small dam was built to give them access to water. The 5-hectare restoration site now includes three fenced-in springs and is viewed as a potential model for other parts of the country. Water quality and quantity at the restoration site has increased and grass is growing back. The site has also helped to raise awareness of the issue among policy makers and herders.

The scale of the challenge became clear for Gerelt-Od Badarch, governor of Khashaat *soum* (a sub-provincial administrative district), in 2016 after a seminar in Arkhangai Province on peatland degradation hosted by ADB and the Japan Fund for Poverty Reduction (JFPR). "There's no grass on the peatlands and no water," says Badarch. "It's having a direct financial impact on herders. But now at least we have a basic understanding of what's happening." "This assistance from JFPR and ADB has provided invaluable information about peatland ecosystems and their importance to Mongolia," says Ariuntuya Dorjsuren, Director General, Department of Climate Change and International Cooperation at Mongolia's Ministry of Environment and

Tourism. “We will continue our effort to protect and conserve these vital areas in cooperation with our partners."

A key objective is to address a data deficit. A comprehensive assessment report produced under the technical assistance outlines ways to conserve peatlands. A policy brief focuses on priorities at local, national, and international levels and examines ways of raising awareness and building capacity. A draft strategic action plan identifies more than 80 initiatives to meet immediate needs at 10 priority peatland areas. In the Orkhon Valley these include a detailed study of the hydrology examining threats such as water contamination and blockage, as well as protection of peatlands that are still intact.

Chimed believes that herders in his area now appreciate the need for urgent action, having seen how fast the landscape is deteriorating. That makes him optimistic that at least some of the damage can be mitigated and perhaps reversed.

- https://www.adb.org/results/mongolia-battles-save-its-peatlands-and-nomadic-way-life

Chimed showing peat in Orkhon Valley, Mongolia. Photos: Hans Joosten.

Australasia

Australia

NSW brumbies bill a 'global embarrassment’

The government of New South Wales (NSW) has been accused of making Australia the laughing stock of the world after parliament passed a controversial bill to protect wild horses. The legislation passed on June 6, sparked anger among environmentalists and conservation groups. Professor David Watson announced his resignation from NSW's Threatened Species Scientific Committee on Thursday citing the "willful disregard" the government has for science by passing the bill. "Feral horse populations have a litany of negative effects on native plants, animals, and ecological communities," Prof Watson said in his resignation letter. "Put simply, feral horses are incompatible with protected area management." NSW Deputy Premier John Barilaro argued the laws aimed to find a balance between managing sensitive areas of the Kosciuszko National Park and managing the feral horse population through humane population control measures. "This will finally end years of speculation around the lethal culling of one of Australia's national icons," Mr Barilaro said in a statement. If

brumbies are found in highly-sensitive alpine areas of the park, resources will be allocated to relocate them, and if population numbers grow too high, they will be re-homed.
Ecologists, international conservation groups and the state's leading animal welfare body, the RSPCA, were among those who voiced opposition to the move, as well as NSW Labor and the Greens. National Parks Association chief executive Alix Goodwin said it was an "international embarrassment".

Brumbies in the high grasslands near Kiandra in the Snowy Mountains. Photo: Fairfax file image

Established in 1944, Kosciuszko National Park is the most visited national park in NSW outside the Greater Sydney region with over two million visits each year. The park is home to rare and threatened animal species as well as 21 species of flowering plants that are found nowhere else on earth. The peatland soils are unique, as are the alpine and subalpine bog and wetland catchments which help to supply high-quality water to the Murray-Darling Basin. “This bill represents the greatest conservation threat in 75 years to one of the great national parks of Australia and the world, and a threat to one of the most sensitive, important and economically valuable water catchments of Australia,” Australian National University’s Associate Professor Graeme Worboys said. “It would lead to destruction of Kosciuszko National Park as we know it today.”
Meanwhile, the Victorian government is planning to rehome or cull about 2500 feral horses in the alpine region.

- https://www.bombalatimes.com.au/story/5455460/nsw-brumbies-bill-a-global-embarrassment/
- https://www.begadistrictnews.com.au/story/5436496/labor-opposes-proposed-bill-to-outlaw-culling-of-brumbies/

The Alpine Peatland Protection Program delivering results

Alpine peatlands are extremely rare in Australia. They occur in small pockets across Victoria, Tasmania, New South Wales and the Australian Capital Territory, accounting for only 0.001 % of the Australian continent. Although this fragile landscape has been ravaged by fire, invaded by weeds, and disturbed by deer, Victoria’s Alpine peatlands are beginning to thrive again thanks to a five-year multi-government agency effort to preserve these unique ecosystems. The Victorian Alpine Peatland Protection Program was established in 2013 to reduce the threats posed to these nationally significant landscapes, defending them against pest plants and animal invasion and improving peatland resilience by rehabilitation. The initiative is jointly funded through Parks Victoria and the Australian Government’s National Landcare Program via the North-East Catchment Management Authority. The peatlands are found at the source of many major rivers, including the Murray, and are home to many unique, rare and endangered plant species, vegetation communities and animals. Alpine peatlands are listed for protection under the Federal Government’s *Environment Protection and Biodiversity Conservation Act* – the legal framework to protect and manage nationally and internationally important flora, fauna, ecological communities and heritage places. Some unique species found in the Alpine peatlands are the Alpine Marsh-Marigold (*Caltha introloba*), a plant that flowers under the melting snow, and the diminutive

black and yellow striped Corroboree Frogs (*Pseudophryne corroboree* and *P. pengilleyi*), that are not much bigger than a finger-tip. Highly invasive peatland weeds such as Grey Sallow Willow (*Salix cinerea*) and Soft Rush (*Juncus effusus*) are the focus of continued efforts from the Peatland Protection Program. If left to spread, they create dense thickets precluding other plant species. Willows in particular emerged as a significant threat following the 2003 fires. When most of the Victorian alpine landscape was blackened and peatlands were left bare, willow seed blew up from the valleys and germinated in the wet soil. Parks Victoria Ranger Team Leader Kevin Cosgriff recalls, "The sprouting willow seedlings were so great in number that they looked like the hairs on a dog's back." While the response to this emerging threat was swift, and countless willows were removed from the peatlands, it was realised in 2013 they were still a major problem in the Victorian Alps. The Peatland Protection Program ensured that the willow control efforts continued to the point where many of the large willows in peatlands that were mature enough to set seed were removed. Since 2013, 940 hectares have been treated for Willows and Soft Rush in the Alpine and Mount Buffalo National Parks.

In the past five years alone, more than 1000 volunteers have participated in 14 separate community events to help control Willows in the Alpine and Mount Buffalo National Parks. Willows and Soft Rush continue to present a challenge in peatlands, but the program ensures that there are far fewer plants producing seed than there were five years ago.

Another important aspect of the program, rehabilitation, has seen three significantly degraded peatlands undergo transformation. More than 10,000 native plants and shrubs have been planted on previously weedy and degraded ground, while program funding has also enabled the breaching of an abandoned water channel on Spion Kopje Spur to return water flows to a large peatland and bring it back to life.

It's not only pest plants that have caused issues within the fragile Alpine peatlands environment. Sambar Deer (*Cervus unicolor*) also endanger peatland health by wallowing in pools, trampling and grazing native plants and spreading weed seed on their fur. The Peatland Protection Program broadened its scope to establish the *Alpine National Park Three Year Deer Control Trial* in 2015 in an effort to deter deer from moving into peatland areas. Sambar are the predominant deer species in the Alpine National Park. Anecdotal evidence suggests that their numbers in the Alpine National Park have increased exponentially over the past decade. The trial is designed to support these observations with scientific calculations of abundance, deer movement and habitat use. In 2015, more than 50 infra-red triggered cameras were set up across two areas of the Bogong High Plains to track deer abundance, movement and use of habitat. In that time more than 350,000 images have been taken with image data collated for further analysis. Another aspect of the Deer Control Trial is to test a variety of hunting techniques to see if any of them can be used to deter deer from venturing into the alpine peatland areas. Volunteers from the Australian Deer Association and the Sporting Shooters Association of Australia have performed a number of targeted deer control operations as part of this trial. To ensure the effort already invested by the Victoria Peatland Protection Program continues, Parks Victoria and the North-East Catchment Management Authority are once again partnering funding through the Australian Governments NLP2 funding grants. The funding will assist in tackling emerging threats to the Peatland communities, continue support of the Deer Control Trial and maintain the current investment in Willow and Soft Rush control and peatland rehabilitation.

- http://parkweb.vic.gov.au/about-us/news/the-alpine-peatland-protection-program-delivering-results

Europe

European Union

EU Biodiversity Strategy

The European Commission is asking for feedback on the Evaluation of the EU Biodiversity Strategy to 2020 through an online consultation that will be open until July 18th 2018. View online:
http://ec.europa.eu/info/law/better-regulation/initiatives/ares-2018-3259397_en

Belarus

Understanding Polesie peatlands: Fact finding mission to Belarus completed

A small group of peatland scientists from the Greifswald Mire Centre GMC and IMCG visited southern Belarus it the end of May to discuss water management at Zvaniec Mire, one of Europe's largest near-natural peatlands. The site holds about 25% of the world population of the globally threatened Aquatic Warbler. Recently, habitat conditions have deteriorated and the site is now classified as Important Bird Area (IBA) in danger. The group identified main directions of future monitoring and studies to improve water management. Together with experts from the Belarusian Academy of Sciences and the Lithuanian-Belarusian LIFE project on the Aquatic Warbler, concrete steps and increased cooperation were agreed to better understand and protect this and other fens in Polesie region.

'Mineral island' within reed and shrub encroached Zvaniec fen, Belarus. Photo: Hans Joosten.

Belgium

18 black grouse arrive in Hautes Fagnes to strengthen population

From 18 April to 1 May 2018, a mission to Sweden, coordinated by the University of Liège and the Royal Belgian Institute of Natural Sciences, aimed to capture 25 black grouse in sites where the species is still found very abundantly, as part of a project to strengthen the population of black grouse in the Hautes Fagnes. The mission was supported in particular by the WWF-Belgium. The project started in the spring of 2017 with the successful translocation of 10 birds. Now, 18 Black grouses (ten males and eight females) have joined the ones in the Fagnes. The goal of the project is to breathe new life into the last population of black grouse (*Tetrao tetrix*) that remained in the Hautes Fagnes National Wildlife Sanctuary in 2017 (two males and one female recorded in the spring before the first translocation operation). The challenge is to help the species recover to a viable population level in the medium and longer term (between 80 and 160 male and female individuals combined) in order to save the grouse from extinction in Belgium. Continental populations of black grouse are a "Natura 2000 species" in the Walloon Region. The populations of continental western Europe have all but disappeared, and the population of the Hautes Fagnes is one of the last in northwestern Europe and the last in Belgium. https://wwf.be/fr/actualites/18-tetras-lyres-arrivent-dans-les-hautes-fagnes-pour-renforcer-la-population/

Germany

Putting a price on ecosystem service

In a recent research project (CLEARANCE) the mire research group at the Institute for Ecosystem Research at Kiel University (Germany) studies marketing strategies for ecosystem services with a special focus on water quality improvement through wetland restoration. From literature it is well known, that hydrologically undisturbed mires and wetlands have a high potential for nutrient retention. Their efficiency depends on the wetland type, and several factors which are influencing the substance retention, such as temperature, catchment area, land use, drainage, flow rate etc. and the associated seasonal fluctuations. In the project, we are interested, how nutrient retention in wetlands can be marketed as an ecosystem service. Where has water quality improvement through mire and wetland restoration already a price?

Here we need your assistance, do you know practical examples of marketing of wetlands as a nutrient sink? If so, provide us please with information about these projects. We are interested in your case studies and especially which wetland types are considered, how retention rates are predicted, how these predictions are monitored, how a price is calculated, and how the marketing is organized (who is seller, who is (qualified as) buyer. If you have answers to some of these questions, please send your knowledge in an email to Lydia Christ: lchrist@ecology.uni-kiel.de Thanks for your support!

Ireland

IPCC starts petition to ban moss peat in gardening products

The Irish Peatland Conservation Council (IPCC) has created an online petition calling for a ban on the use of moss peats in gardening products, to protect sphagnum mosses and to raise bog habitats and their wildlife.

According to the IPCC, the National Peatland Strategy of Ireland called for a review of the use of moss peat in gardening products in 2015 but no action has been taken to date. There are currently up to 50 companies mining moss peat in Ireland, including the semi-state Bord na Mona. The IPCC is encouraging people to use available alternatives to moss peat in gardening and professional horticulture, such as bark, shredded wood fibre, green waste, leaf mould, and worm compost. The goal is to stop companies mining moss peat from raised bogs in Ireland which causes significant environmental damage including the loss of habitat and the release of greenhouse gases. Human exploitation of Ireland's bogs as a source of fuel and sustenance in Ireland

Eroding peat in the Wicklow Mts, Ireland. Photo: Hans Joosten.

for years has brought many species of plants and animals to the brink of extinction. Peatlands originally covered more than 17 % of the land surface in the Republic of Ireland. Intensification of fuel turf and horticultural peat extraction from the 1940s, however, has depleted peatland areas across Ireland. Peatlands are estimated to contain more than 75% of the soil organic carbon in the country. According to the Environmental Protection Agency, around 23 Mt of soil carbon was lost between 1990 and 2000 through industrial peat extraction.

- https://greennews.ie/conservation-group-petition-ban-peat-moss-peatlands/

United Kingdom

Peatland contributions to UK water security

Peatlands are vital to UK water security and must be protected to preserve the UK's water supply, say scientists. water@leeds scientists from the University of Leeds have developed a new global index that identifies water supplied from peatlands as a significant source of drinking water for the UK and the Republic of Ireland. The scientists estimated that in the UK 72.5% of the storage capacity of water supply reservoirs is peat-fed water. In the Republic of Ireland they estimated that drinking water fed by peatlands supports the equivalent of 4.22 million people or 68% of the national population. This demonstrates the crucial role peatlands play in the water security of these countries. Study co-author, Professor Joseph Holden, director of water@leeds said: "Globally only 28% of peatlands that supply drinking water to large populations are pristine or protected. In the UK it's imperative that we support the great work of peatland restoration agencies and partnerships which are working with water companies to enhance the condition of our degraded peatlands.

Pools of water on UK blanket peat. Photo: Hans Joosten.

"The UK consumes approximately 1.56 cubic kilometres of drinking water per year that has come from peatlands. This resource supports the equivalent of 28.3 million people or more than 43% of UK population. Threats to peatlands could mean a significant threat to the UK's water security. Worldwide, predicted rising global temperatures and the draining or burning of peatlands for agriculture and industry are a real concern as degradation of these fragile ecosystems could seriously compromise the water quality peatlands provide."

The study, published in *Nature Sustainability*, analysed global peatlands, their proximity to human populations and data for flow into drinking water supplies. The index developed determined the amount of drinking water contributed by peatlands and locations where populations may be reliant on this water supply. The study

estimates peat-rich catchments provide water to roughly 71.4 million people globally. The scientists found that in many regions worldwide large peatlands with high water content were too far away from human populations to provide major sources of drinking water. However, the study also identified hotspots where peatlands are crucial for water supply. Most of these key areas were found to be in the British Isles, where approximately 85% of all global drinking water sourced directly from peatlands is consumed.

Removing peat sediment and dissolved organic carbon from water draining from degraded peatlands represents the largest costs in raw water treatment for water utilities in the UK. In recent decades concentrations of dissolved organic carbon in water from UK upland peatlands have increased rapidly due to changes in atmospheric chemistry and peat degradation. Study co- author, Dr. Paul Morris, from the School of Geography at Leeds, said: "Future changes in climate threaten the stability of peatlands and water treatment costs. In England, up to 96% of deep peatlands are subject to degradation from historic pollution, erosion and land-management such as drainage. The costs of dealing with further degradation from land management or climate change could be considerable, as new treatment methods may be required to cope with water from more degraded peatlands. Restoration and protection of peatlands to safeguard water quality may be the more cost-effective method in the long-term." While the study highlights the importance of peatland water resources in the UK and Ireland, the researchers also identified a number of other regions where large amounts of drinking water are sourced directly from peatlands, including areas in Australia, Belgium, Brazil, Canada, China, Germany, New Zealand, and the United States.

- https://phys.org/news/2018-05-peatland-contributions-uk.html#jCp

Big cash injection for Yorkshire peatland restoration

Conservation work to reverse the declining condition of peatlands has been going on in Yorkshire for some time but the work received a fresh boost thanks to a new £4.45m government investment. The North of England peat partnership, led by Yorkshire Wildlife Trust, will use the funding to restore 394ha of lowland raised bog and 1,679ha of blanket bog across 21 peatland sites. Dr Tim Thom, the Trust's peat programme manager, said: "It's fantastic to see peatlands on the Government's agenda and getting the recognition they deserve, both in terms of the benefits they bring and the parlous condition we have let so many of them reach. "This funding will enable us to restore some of the most important and beautiful sites across the north of England. From England's largest lowland raised bog in South Yorkshire all the way up to Northumberland's highest point near the Scottish border, over 2,000ha of peatland will be repaired, locking up carbon, filtering our drinking water, managing flooding and providing habitat for some fascinating species." Defra is splitting a total of £10m between four projects across the country, including Moor Carbon, a scheme led by the Peak District National Park Authority. The park will be working within its boundaries, on the West Pennine Moors Special Site of Scientific Interest and on Rossendale Gap to restore more than 2,100ha of blanket bog. Environment Minister Thérèse Coffey said: "Peatlands are an iconic aspect of the English landscape which are not only a haven for wildlife but also provide us with clean water and help reduce greenhouse gas emissions."

- https://www.yorkshirepost.co.uk/news/environment/big-cash-injection-for-yorkshire-peatland-restoration-1-9172614

South West Water gets £2m funding for peatland project

South West Water has been awarded £2 million from the Department for Environment, Food and Rural Affairs (Defra) for a three-year project to restore peatland on the South West's moors. The government has handed out £10 million worth of grants in total for such work across England as part of its 25-year Environment Plan. South West Water will work with regional and local organisations to restore 1,680 hectares of damaged peatland on Bodmin Moor, Dartmoor and Exmoor. Partnerships have been formed on all three moors including landowners, commoners and other interested parties to develop the proposals and this will continue through the delivery of the restoration. Restoration work will start in August 2018.Environment minister Thérèse Coffey, said: "The 25-year Environment Plan sets out the government's commitment to improve peatlands and grant schemes such as this one will enable us to leave our environment better than we inherited it."

- https://utilityweek.co.uk/south-west-water-gets-2m-funding-peatland-project/
- https://www.hortweek.com/grants-peatland-restoration-awarded/landscape/article/1464709
- https://www.farminguk.com/news/England-s-peatland-to-be-restored-under-new-10m-grant-scheme_49303.html
- https://www.piratefm.co.uk/news/latest-news/2579971/2-million-to-restore-damaged-land-on-bodmin-moor/
- http://www.govopps.co.uk/grants-for-peatlands-restoration/
- https://www.waterbriefing.org/home/biodiversity-and-ecoservices/item/15114-south-west-water-partners-receive-%C2%A32m-funding-boost-for-ambitious-three-moors-project

Peatland Connections: Building Prosperity. 2nd October - 4th October 2018

Early Bird tickets are now on sale for the IUCN UK Peatland Programme's 8th conference - Peatland Connections: Building Prosperity - in partnership with Scottish Natural Heritage's **Peatland Action** and **Loch Lomond and The Trossachs National Park**.

This year the conference is being held on the shore of Loch Lomond in Balloch. What constitutes as a public benefit? How do we account for public benefits and/or reward those who provide them? How does provision of public benefit impact land management decision making? With public benefit in mind, over the two and half days (2nd – 4th October, Balloch, Loch Lomond) we will be exploring innovative solutions to commonly faced issues around sustainable land management that delivers for people and the environment.

Book Now

2018 **Flow Country research conference**

The 5th edition of the Flow Country Research Conference is going to be held on the 30th of October (registration only), 31st of October (full day of presentations) the 1st of November 2018 (presentations and workshop), with an optional free field trip on the Friday 2nd of November. Registration will open in July.

2019 Flow Country date for your diary

The Peatlands Partnership has announced that it will be holding a major conference on The Flow Country of Caithness and Sutherland on 7th and 8th May 2019. The conference will mark the end of its £10.6 million Heritage Lottery funded "Flows to the Future" Project and both take stock of its achievements to date and look forward to future peatland developments, including the possible inscription of The Flow Country as a World Heritage Site. The conference will be held in Inverness at the Centre for Health Science and more details about the programme and possible conference excursions will be available later this year.

Controversial management deal comes to an end

For its advocates, it was a way of funding crucial moorland management and protecting some of Yorkshire's finest heather habitat. But its critics felt differently, and after years of controversy, Bradford Council ended grouse shooting on Ilkley Moor earlier this year. And end of April, the ten-year lease that allowed Bingley Moor Partnership (BMP) to hold shoots on eight days in January came to an end. Before that, shooting had taken place on Ilkley Moor for more than 100 years, except for a break between 1997 and 2007. Now campaigners are urging the Council to ensure the Moor, the last municipal moorland in the UK where the practice was permitted, recovers from "terrible legacy" of grouse shooting and is used to promote wildlife biodiversity, education, leisure and the local economy. The NGO 'Ban Bloodsports on Ilkley Moor' claims that over half of protected breeding bird species had declined or become locally extinct on Ilkley Moor since the lease was in place. It now wants efforts to be focused on reversing the wildlife crash, which has negatively impacted on the moor's population of specialist species, including Merlin, Dunlin and Short Eared Owl, and restoring peatland habitat. The Council said its focus was now on implementing its management plan for the Moor, which sets out the intention to seek funding from a new agri-environment scheme. It is still yet to be approved by Natural England, but the 75-page document includes a "vision for Ilkley Moor" that "conserves and enhances it unique habitats"; maintains and restores its active blanket bog; manages flood risk; and provides a home for protected species "such as the upland moorland birds which thrive there and help to give the moor its identity". The plan also sets out how the Moor can provide artistic inspiration; a place for leisure and education; and serve as an "economic asset" to the District - both as a tourist destination and in providing employment and supporting local agricultural endeavour.

- https://www.yorkshirepost.co.uk/news/environment/time-to-focus-on-moorland-s-future-as-controversial-management-deal-comes-to-an-end-1-9144654

RBS to cut lending projects destroying peatlands

The Royal Bank of Scotland will no longer fund Arctic oil projects and has pledged to cut lending to firms profiting from coal as part of an updated energy policy meant to take a harder line on climate change. The changes - which cover the mining, power and oil and gas sectors - mean the bank will not provide "project-specific finance" to new coal-fired power stations, new thermal coal mines, oil sands or Arctic oil projects, or those involved in "unsustainable" vegetation or peatland clearing.

- http://www.heraldscotland.com/news/16256000.RBS_to_cut_lending_to_Arctic_oil_projects/
- https://www.theguardian.com/business/2018/may/29/rbs-cuts-lending-to-new-coal-and-arctic-oil-projects

Peatland conservation relevant papers May 2018

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1. Hotspots of peatland-derived potable water use identified by global analysis: https://www.nature.com/articles/s41893-018-0064-6
2. Water-level dynamics in natural and artificial pools in blanket peatlands: https://onlinelibrary.wiley.com/doi/abs/10.1002/hyp.11438
3. Regime shifts and hysteresis in the pitcher-plant microecosystem: https://www.sciencedirect.com/science/article/pii/S030438001830139X
4. Vertical stratification of peat pore water dissolved organic matter composition in a peat bog in Northern Minnesota: https://agupubs.onlinelibrary.wiley.com/doi/full/10.1002/2017JG004007
5. Duurzaam herstel van hoogveenlandschappen: https://www.natuurkennis.nl/Uploaded_files/Publicaties/obnbrochure-hoogveen-def.c4efa8.pdf
6. Factors regulating carbon sinks in mangrove ecosystems: https://onlinelibrary.wiley.com/doi/abs/10.1111/gcb.14322
7. Resilience of a peatland in Central Sumatra, Indonesia to past anthropogenic disturbance: Improving conservation and restoration designs using palaeoecology: http://onlinelibrary.wiley.com/doi/10.1111/1365-2745.13000/abstract
8. Spring-fen habitat islands in a warming climate: Partitioning the effects of mesoclimate air and water temperature on aquatic and terrestrial biota: https://www.sciencedirect.com/science/article/pii/S0048969718310799
9. The relation between land use and subsidence in the Vietnamese Mekong delta: https://www.sciencedirect.com/science/article/pii/S004896971831132X
10. Principal factors controlling the species richness of European fens differ between habitat specialists and matrix-derived species: https://onlinelibrary.wiley.com/doi/abs/10.1111/ddi.12718?campaign=woletoc
11. Environmental controls on carbon sequestration in a saline, boreal, peat-forming wetland in the Athabasca Oil Sands Region: https://www.researchgate.net/publication/325367701_Environmental_controls_on_carbon_sequestration_in_a_saline_boreal_peat-forming_wetland_in_the_Athabasca_Oil_Sands_Region
12. Vertical distribution of aerosols over the Maritime Continent during El Niño: https://www.atmos-chem-phys.net/18/7095/2018/
13. Eddy covariance measurements of methane flux at a tropical peat forest in Sarawak, Malaysian Borneo: https://agupubs.onlinelibrary.wiley.com/doi/abs/10.1029/2017GL07645
14. Direct evidence of a large Northern European Roman period martial event and post-battle corpse manipulation: http://www.pnas.org/content/early/2018/05/15/1721372115
15. Terrestrial sediments of the Earth: Development of a Global Unconsolidated Sediments Map Database (GUM): https://agupubs.onlinelibrary.wiley.com/doi/full/10.1002/2017GC007273
16. 2017 Annual Report of the IPS: http://www.peatlands.org/sites/default/files/annualreport2017small.pdf
17. First evidence of a lake at Ancient Phaistos (Messara Plain, South-Central Crete, Greece): Reconstructing paleoenvironments and differentiating the roles of human land-use and paleoclimate from Minoan to Roman times: http://journals.sagepub.com/doi/abs/10.1177/0959683618771473
18. Response of a spring-fed fen ecosystem in Central Eastern Europe (NW Romania) to climate changes during the last 4000 years: A high resolution multi-proxy reconstruction: https://www.sciencedirect.com/science/article/pii/S0031018218300191
19. Small-scale spatial patterns of soil organic carbon and nitrogen stocks in permafrost-affected soils of northern Siberia: https://www.sciencedirect.com/science/article/pii/S0016706117318414
20. Carbon emissions from Southeast Asian peatlands will increase despite emission-reduction schemes: http://onlinelibrary.wiley.com/doi/10.1111/gcb.14340/abstract

21. Harvesting surface vegetation does not impede self-recovery of *Sphagnum* peatlands: https://onlinelibrary.wiley.com/doi/abs/10.1111/rec.12834
22. Conflict between habitat conservation and Corncrake Crex crex brood protection in managed floodplain meadows: https://www.sciencedirect.com/science/article/pii/S0167880918302263
23. Testate amoeba records indicate regional 20th-century lowering of water tables in ombrotrophic peatlands in central-northern Alberta, Canada: https://onlinelibrary.wiley.com/doi/abs/10.1111/gcb.14143
24. Palm oil intensification and expansion in Indonesia and Malaysia: Environmental and socio-political factors influencing policy: https://www.sciencedirect.com/science/article/pii/S1389934117304483
25. Deforested and drained tropical peatland sites show poorer peat substrate quality and lower microbial biomass and activity than unmanaged swamp forest: https://www.sciencedirect.com/science/article/pii/S0038071718301482
26. Brief review on climate change and tropical peatlands: https://www.sciencedirect.com/science/article/pii/S1674987118300343
27. Sundaland peat carbon dynamics and its contribution to the Holocene atmospheric CO_2 concentration: https://agupubs.onlinelibrary.wiley.com/doi/abs/10.1002/2017GB005763
28. Ground-based measurements of column-averaged carbon dioxide molar mixing ratios in a peatland fire-prone area of Central Kalimantan, Indonesia: https://www.nature.com/articles/s41598-018-26477-3
29. Carbon sequestration in wetland soils: https://www.researchgate.net/publication/325480551_Carbon_Sequestration_in_Wetland_Soils
30. A biogeochemical compromise: The high methane cost of sequestering carbon in restored wetlands: https://agupubs.onlinelibrary.wiley.com/doi/abs/10.1029/2018GL077747
31. Wetlands and carbon revisited: https://www.sciencedirect.com/science/article/pii/S0925857417306602
32. Greenhouse gas emissions in natural and managed peatlands of America: Case studies along a latitudinal gradient: https://www.sciencedirect.com/science/article/pii/S0925857417303968
33. Methane emissions from freshwater cypress (Taxodium distichum) swamp soils with natural and impacted hydroperiods in Southwest Florida: https://www.sciencedirect.com/science/article/pii/S0925857417301830
34. Carbon sequestration in wetlands, from science to practice: An overview of the biogeochemical process, measurement methods, and policy framework: https://www.sciencedirect.com/science/article/pii/S0925857417303658
35. Cloud dynamic contribution to high-elevation peatland growth during the Holocene (Escalerani, Central Andes, Bolivia): http://journals.sagepub.com/doi/abs/10.1177/0959683618771480
36. The influence of avian biovectors on mercury speciation in a bog ecosystem: https://www.sciencedirect.com/science/article/pii/S0048969718314001
37. Holocene development of mountain wetlands within and outside of landslide in the Hachimantai volcanic group, northeastern Japan: https://www.sciencedirect.com/science/article/pii/S1040618216315026
38. A unique combination of aerodynamic and surface properties contribute to surface cooling in restored wetlands of the Sacramento-San Joaquin Delta, California: https://agupubs.onlinelibrary.wiley.com/doi/abs/10.1029/2018JG004494
39. Measuring restoration progress using pore- and surface-water chemistry across a chronosequence of formerly afforested blanket bogs: https://www.sciencedirect.com/science/article/pii/S0301479718304948
40. The future of peatland forestry in Scotland : balancing economics, carbon and biodiversity: http://eprints.whiterose.ac.uk/131029/1/34_40_Peatland_forestry_Scottish_Forestry_spring_18.pdf
41. Impact of forest-to-bog restoration on greenhouse gas fluxes: https://dspace.stir.ac.uk/handle/1893/27319#.Wyf0mIoyXiw
42. Hydrometric measurements in peatland-dominated, discontinuous permafrost at Scotty Creek, Northwest Territories, Canada – Changing Cold Regions Network (CCRN) Special Observation and Analysis Period (SOAP): https://www.earth-syst-sci-data-discuss.net/essd-2018-68/
43. Soil moisture monitoring in a temperate peatland using multi-sensor remote sensing and linear mixed effects: http://www.mdpi.com/2072-4292/10/6/903
44. Jääksoode korrastamine AS Nurme Turvas näitel / Rehabilitation of cut-over peatland on the example of AS Nurme Turvas: http://eprints.tktk.ee/3602/1/L%C3%B5put%C3%B6%C3%B6_M_Koit.pdf
45. Hydrology of peat-dominated headwater catchments: theories and empirical analysis of the impacts of anthropogenic disturbance: http://jultika.oulu.fi/Record/isbn978-952-62-1937-0
46. Assessment of the water and energy budget in a peatland catchment of the Alps using the process based GEOtop hydrological model: https://www.sciencedirect.com/science/article/pii/S0022169418303688
47. Greenhouse gas dynamics of a northern Boreal peatland used for treating metal mine wastewater: https://link.springer.com/article/10.1007/s13157-018-1040-7

48. Effects of water regimes on methane emissions in peatland and gley marsh: https://dl.sciencesocieties.org/publications/vzj/articles/17/1/180017
49. Peatland vegetation composition and phenology drive the seasonal trajectory of maximum gross primary production: https://www.nature.com/articles/s41598-018-26147-4
50. From mountains to plains: Ecological structure of the South Ural (Russia) fen vegetation: https://link.springer.com/article/10.1007/s13157-018-1048-z
51. Vegetation matters: Correcting chamber carbon flux measurements using plant volumes: https://www.sciencedirect.com/science/article/pii/S0048969718318412
52. Groundwater dynamics in mountain peatlands with contrasting climate, vegetation, and hydrogeological setting: https://www.sciencedirect.com/science/article/pii/S0022169418303032
53. Near-surface permafrost aggradation in Northern Hemisphere peatlands shows regional and global trends during the past 6000 years: http://journals.sagepub.com/doi/abs/10.1177/0959683617752858

Aapa mire near Gällivare, North Sweden. Photo: Hans Joosten.