# IMCG Bulletin: January 2014

## Word from the Chair

INTERNATIONAL MIRE CONSERVATION GROUP

www.imcg.net

Dear mire friends

2014 is well under way and our January edition is a bit late! We apologise but we were waiting for confirmation of the final arrangements of the **2014 IMCG General Assembly and Field Symposium** in Belarus. And, yes, we can announce that all are in place for this important event!! Read more on this exciting event on page 3!!

Our ***Mires and Peat*** editor, Olivia Bragg reveals more on the special edition on **Mountain Peatlands** (page 5). What are your **priorities for peatlands** in 2014? Marcel Silvius from Wetlands International is sharing his views with us on page 6, and some excellent **feedback on the Australian meeting** follows on page 7.

The theme of Ramsar's World Wetlands Day in 2014 (celebrated on 2 February) focuses on **Wetlands and Agriculture**. The impacts of wetlands on mires and peatlands are well known. However, many people across the globe depend on agriculture in wetlands for survival. Perhaps less known is that many initiatives are underway to minimise the impacts. Read more about (and participate in) the **FAO initiative** on page 9. We would like to encourage IMCG members to share news and experiences of their **WWD activities** with us.

Of special interest for myself is the report back on meetings I had with my predecessors. What a privilege to have met with former **IMCG chairs** (except the late Ton Damman), to learn from past experiences, share in their wisdom and to have their advice on how to keep the IMCG a vibrant, effective and appropriate networking organisation. Read more on the outcomes of these meetings in the next section.

Be Blessed in 2014!! Keep safe and enjoy all the news from all over.

## IMCG post Australia 2013 – Chances for further improvement?

(Jan Sliva -sliva@wzw.tum.de, Piet-Louis Grundling & Hans Joosten)

During the IMCG/FIDO pre-excursion and field survey on Fraser Island (see the short report in IMCG Bulletin 11/2013) as well as during the main excursion in south eastern Australia and Tasmania, the participants found enough time to talk about various IMCG-related issues. Being surrounded with spectacular landscapes and unique peatlands, the discussion focused also on the important topic "Quo vadis, IMCG?"

Not only the landscapes and mires were unique, also the situation that three former IMCG Chairs Richard (Lindsay), Jan (Sliva) and Jennie (Whinam) could share their opinion and experience with the current Chair – Piet Louis (Grundling), was, in fact, exceptional.

There were important issue that was thoroughly debated, especially

- how to make the work of IMCG more efficient,
- is there a chance to increase the "presence" and "impact" of IMCG
- how to achieve better active involvement of our broader membership, and
- how to ensure the long-term sustainability of IMCG efforts and achievements.

There were no ready-to-apply solutions developed; however, some feasible ideas should be further elaborated.

***Jan, Jennie, Piet-Louis and Richard***

As the first step it is necessary to update the *IMCG Membership Database*. Since the IMCG still keeps the free membership, and thus we cannot track the locations of our members via annual payments of fees, there are many of you that did not reported the changes of the email-address to the Secretariat. As a consequence, there are more and more emails, e.g. emails with our monthly Bulletins, which are bounced back as undeliverable. This is a clear signal for us to make an "inventory" of the membership and update the database. Hence, in the near future, you will receive an email request to help us to update your personal data and the call for the data update will be also published on the IMCG website. With help of our regional membership coordinators we will try to find as much lost IMCG souls as possible. Untraceable persons will be cancelled from our distribution lists and our membership list will be updated accordingly.

Together with the update of our membership list, we would like to re-vive the *IMCG Expertise Database* project. The idea behind is to have a database of our members with professional capabilities and focal areas with respect to mire ecology, conservation and restoration, which would allow us to handle operationally when IMCG-relevant problems raise or when IMCG expert groups should be created for particular professional purposes. The IMCG Expertise Database should also provide an overview of which IMCG members actively work in which committees, boards, associations or conventions. At the moment IMCG is only officially represented in the European Habitat Forum. However, IMCG members are active in a large number of national and international organisations and committees. It makes sense to make an inventory of that within the framework of the "expert database". The monthly Bulletin can function as the platform, where these active members shortly report about their involvement and achievements.

The next important and not easy task that we would like to approach, is the involvement of the broader membership. The majority of our members welcomes and appreciates the benefits of regularly receiving professional information, but little effort is made to share local and regional news and information. This is evident from the fact that always the same few members report in the Newsletter and Bulletin. In the next issue of the Bulletin, some suggestions will be presented how to improve this.

## IMCG 2014 Field Symposium, Congress and General Assembly, Belarus, July 13-27, 2014.

The IMCG 2014 Field Symposium, Congress and General Assembly will be held in Belarus from 13 to 27 July 2014. We will make a round-tour through the entire country and visit the most important mire and peatlands, with many new developments and interesting discussions.

**Venue: Belarus**

Belarus is an important peatland country (some etymologists even argue that the "bel-" of Belarus means "peatland"). With a total peatland area of 22,352 $km^2$ Belarus ranks 15th among all countries of the world. Half of the peatlands are drained and used for agriculture, peat extraction and forestry, leading to peatland emissions of more than 40 Mt $CO_2$ $year^{-1}$, making Belarus the 8th most important peatland carbon emitting country in the world. The other half of the peatlands is still in good condition.

Belarus is a fascinating country, because it allows, as one of the few countries in the temperate zone, to see almost side-by-side:

- impressive extensive natural peatlands with high botanical and faunistical biodiversity,
- strongly degraded peatlands, where large scale peat extraction (e.g. for fuel) and peatland agriculture are taking place
- large rewetted and restored peatlands, where emissions are substantially reduced and mire diversity is regenerating.

***Yelnia – one of Belarus' most beautiful and least disturbed bogs (photo: Annett Thiele).***

**Theme: New concepts of peatland management, restoration and financing**

Belarus is a global frontrunner in the development and application of new concepts of peatland management, restoration and its financing. These include, for example, carbon credits from peatland rewetting (both under the Kyoto Protocol and for the voluntary market) and paludicultures, the economic use of wet peatlands. Paludicultures are implemented as an economically feasible option for the necessary management of slightly degraded fen peatlands with global biodiversity values and – in case of rewetted peatland - to provide new sustainable economic perspectives for the rural area, e.g. by replacing peat fuel by biomass fuel.

The excursion will visit the key places and will allow intensive exchange with the persons and organisations that bring these things forward.

**Registration**

The ***Field Symposium*** will for logistical reasons be limited to 50 persons, so register (with the registration form) as soon as possible. ***Deadline*** for registration is 30 April 2014!

The costs for the total trip will be ***€ 850 for IMCG members***. Early registration is necessary to secure the very limited cheap but decent accommodation. To limit costs, participants will be lodged in 2-3 bed guestrooms. Visit our website (www.imcg.net) to download registration forms.

**Itinerary**

The trip will start in Lida in the Northwest of Belarus and end in the famous Berezinsky Biosphere Reserve, one of the oldest peatland reserves in this part of the world. In Berezinsky also the two-days scientific congress will be held (remember to submit title and abstract for your oral presentation or poster!) followed by a half day IMCG General Assembly (only for members). After the General Assembly transfer will be organized to Minsk (or Vilnius if required).

With respect to the arrival: next to Minsk, a very good option for people coming by plane is to travel via Vilnius. Vilnius is an important regional hub and the starting point of the excursion is only 60 km from Vilnius away. We can help with advising transport between Vilnius and Lida or – in case of demand - organize a shuttle (price not included in field symposium fee).

For all questions contact Hans Joosten (joosten@uni-greifswald.de) or Viktar Fenchuk (imcg@ptushki.org)

The ***preliminary programme*** looks as follows

| | |
|---|---|
| July 13 | Arrival in **Minsk or Vilnius**, transfer to **Lida** (3 hrs, 180 km from Minsk; 2 hrs, 60 km from Vilnius). Evening: opening dinner. Overnight in Lida |
| July 14 | **Bartenikha** – restored fen/transitional mire after peat extraction, former GHG measuring site, estimation of GHG fluxes. Overnight in Lida |
| July 15 | **Dokudovskoje** – rewetted fen<br>• Rewetted peat extraction site<br>• Wetland energy project (EU Aid programme): Paludiculture site and Lida peat factory : new pellet line for fen biomass pellets under construction<br>**Dokudovskoje raised bog**<br>• conservation of natural part by stopping draining effect of nearby peat extraction. The mire is scheduled for further peat extraction<br>• discussion on chances for the raised bog to remain functional.<br>Transfer to Belavezhskaja pushcha (3 hrs, 160 km). Overnight in Belavezhskaja pushcha |
| July 16 | **Belavezskaja pushcha**<br>• **Dikoje mire** - Natural fen /transitional mire, Aquatic warbler breeding site. Waterdivide between Black and Baltic Sea. Problems and conservation measures taken<br>• **Diki Nikor**.- Drained fen mire –, potential peatland restoration site. Estimating GHG balance<br>Overnight in Belavezhskaja pushcha |
| July 17 | **Zvaniec** - largest natural fen mire in Belarus. Aquatic warbler breeding site. Presentation of hydrological model. Discussion on the problems with overgrowth with reeds and shrub encroachment. Climate East project on vegetation management and biomass utilisation.<br>Transfer to Sporava (2 hrs). Overnight in Beloozersk (Sporava) |
| July 18 | **Sporava** – fen mire.<br>• Conservation and habitat management of Aquatic warbler breeding site.<br>• Wetland Energy project on harvesting reeds (technology efficiency/ecological impact), effects of harvesting reeds by Ratrak (snowcat based harvestor).<br>• Summarizing field trip so far and discussion on conservation issues raised.trip.<br>Transfer to Pinsk. Overnight in/near Pinsk. |

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| July 19 | **Pinsk**, boat trip along Pripiat river – stop on the way and visiting small fen mires (overgrowing) in Pripiat floodplain<br>3 more hours drive. Overnight in Soligorsk |
| July 20 | Long drive "south-north" – 240 km, 6 hours to Berezinsky. On the way (options):<br>• **Grichino Starobinskoje**: Largest fen restoration site in Belarus. Presentation on restoration approaches, problems<br>• **Minsk city**: sight seeing from bus<br>• **Tsna**: peat extraction site and briquette factory<br>Overnight in Berezinsky |
| July 21 | **Kozjany** mire – largest and most natural complex of raised bogs, wet forests and transitional mires in Belarus. Overnight in Berezinsky |
| July 22 | **Yelnia** mire – largest bog in Belarus, approaches to conservation and restoration.<br>Overnight in Berezinsky |
| July 23 | Berezinsky – excursions. Overnight in Berezinsky |
| July 24 | **Rosnanskoje** (Berezinsky): patterned bog, spring mire and percolation fen<br>Overnight in Berezinsky |
| July 25 | IMCG Congress. Overnight in Berezinsky |
| July 26 | IMCG Congress. Overnight in Berezinsky |
| July 27 | General Assembly. Afternoon: transport to Minsk or Vilnius |

## Mires and Peat: The new Special Volume is imminent

Our 2014/15 Special Volume, opening in the next couple of months, will focus on *Mountain Peatlands*. Although the volume was instigated by the 2012 IMCG Field Symposium in the Andes, we aim to present a global view of high altitude peatlands, what is known about them and the issues surrounding them. The first two articles will be:

- The effect of drainage on organic matter accumulation and plant communities of high-altitude peatlands in the Colombian tropical Andes (J.C. Benavides); and
- A geographical model for the altitudinal zonation of mire types in the uplands of western Europe: the example of Les Monts du Forez in eastern France (H. Cubizolle and G. Thebaud)

Other articles already on the way are more from South America (Colombia, Peru) and western Europe (Germany, Scotland), plus contributions from central Europe (Georgia, Czech Republic) and southern Africa.

If you work in the mountains, and especially if your continent or country is not yet on the list, please do consider whether you could offer a manuscript. The current target date for new submissions is 31 May 2014, but later submissions can be accommodated. To add your planned article to the list, email your provisional title and projected submission date to Olivia Bragg (o.m.bragg@dundee.ac.uk) or Piet-Louis Grundling (peatland@mweb.co.za).

## New articles published since October 2013

**Volume 14 (2014)**

- Mires and mires types of Peninsula Mitre, Tierra del Fuego, Argentina (A. Grootjans *et al.*)

**Special Volume (13): Reed as a Renewable Resource and Other Aspects of Paludiculture**

- Combustion characteristics of reed and its suitability as a boiler fuel (Ü. Kask *et al.*)

- Combustibility of biomass from wet fens in Belarus and its potential as a substitute for peat in fuel briquettes (W. Wichtmann *et al.*)

**Special Volume (11): Peatlands in Balance: a Taster of the 14th International Peat Congress**

- Subsidence and soil $CO_2$ efflux in tropical peatland in southern Thailand under various water table and management conditions (T. Nagano *et al.*)

Find these and more at http://www.mires-and-peat.net/

## Peatland use and climate change mitigation: Priorities for peatlands in 2014

FAO-MICCA has recently made an enquiry into the priorities with respect to peatland use and climate change mitigation for 2014. Here follows the reaction of Marcel Silvius (marcel.silvius@wetlands.org), Head of Programme and Strategy, Wetlands International:

Peatland degradation related to drainage based land-uses results in disproportionately high $CO_2$ emissions from peat carbon oxidation, amounting globally to 5% of all human induced emissions. Half of these are from peat oxidation in South-east Asia where over the last decades millions of hectares of tropical peat swamp forests have been converted to drainage based agriculture, oil palm plantations and Acacia plantations. In dry years this is augmented by huge emissions related to peat fires. While much emphasis has been placed on tropical peat degradation, peat emissions in other regions should not be dismissed: Over 95% of the $CO_2$ emissions from agricultural land use in the EU are derived from peatlands which covers less than 6% of the EU agricultural areas. Peatland drainage causes loss of water retention capacity and land subsidence, which increases risk of flood disasters and even land loss. In the Netherlands over 30% of the land now lies below sea level as a result of peatland subsidence, with some extensive agricultural areas and cities lying as low as 8 meters below the sea. Such subsidence also happens in the wet tropics (at an average rate of 5 cm subsidence per year). However, the mitigation measures used in the temperate zone, such as dikes and pump operated drainage, will not be cost effective and may be practically impossible considering the huge areas involved and the high amount of precipitation. Therefore extensive peatland areas may become flooded and lost for productive land use in the coming century unless alternatives development options are developed. Many options for paludiculture (the economic use of rewetted peatlands using commercially interesting indigenous peatland species) have been identified. I therefore suggest as major priorities:

A. Increasing awareness on the need for major paludiculture pilot projects around the world, to provide a credible alternative for the current disastrous drainage based land-uses on peat;

B. Increase awareness on the peatland subsidence issue and related aspects (especially flooding, salt water intrusion) and the need for taking this into account in land-use planning, including social and economic cost-benefit analysis;

C. The need for a long-term roadmap for cleaning up the oil palm and Acacia plantation sectors in the tropics, involving a gradual removal of existing plantations from peatland;

D. Conservation of remaining natural peatlands, and restoration (rewetting & revegetation) of degraded peatlands, including the implementation of ecosystem restoration as well as paludiculture.

*What is your opinion in this regard? Let us know at: peatland@mweb.co.za*

## News received from IMCG Regions

December 2013 was a highlight for the IMCG members visiting Australia. Bev Clarkson and Dave Campbell are sharing their experience with us:

**IMCG Australian field symposium: perspectives from New Zealand by**

**Bev** (ClarksonB@landcareresearch.co.nz) **and Dave** (DaveC@waikato.ac.nz)

The similarities and contrasts between mires in New Zealand and those we visited in Australia are fascinating. Here we concentrate on commonalities. As in New Zealand, the lowland and drier mountain peatlands are dominated by species of the families Restionaceae and Cyperaceae. In both countries the dominant peat former in these systems is *Empodisma minus* (Restionaceae), known as spreading rope rush in Australia and wire rush in New Zealand. Recent work in New Zealand has resulted in the description of a new species in the northern North Island north of 38°S latitude, which has a warmer and drier climate than the rest of New Zealand. The new species is more robust than the more common *Empodisma minus,* hence the name *Empodisma robustum*.

On the pre-IMCG trip to subtropical Fraser Island organised by John Sinclair we noticed that the *Empodisma* plants dominating the mires were quite robust and could well be *E. robustum* – this could be easily confirmed by DNA analysis, and morphological and ecological characteristics outlined in Wagstaff and Clarkson (2012). All plants observed on the IMCG trip, in mires in the Blue Mountains, Kosciuszko, and Tasmania, appeared to be the 'bog standard' *Empodisma minus*.

**Empodisma minus *showing the peat-forming cluster roots at the mire surface***

The extremely low nutrient Sydney sandstone swamps and button grass moorlands appear analogous to New Zealand's pakihi and gumland (heathlands on podzolised, nutrient-deficient soils prone to water logging; Clarkson et al. 2011)) in which N and P levels are extremely low. These mire systems do not fit easily into standard wetland classification systems and may warrant new categories for particularly oligotrophic wetlands.

It was interesting to learn that restoration issues and approaches are very similar across the Tasman. We observed great success with the patch approach to restoration of mires in Kosciuszko National Park and elsewhere, and we use a similar approach to restore cutover bog s in North Island, New Zealand. Additionally, grey willow (*Salix cinerea*) is a wetland transformer in swamps and fens in both countries, and we noted it is a key species for control at Wingicarribee Swamp.

While daydreaming in Pengelli mire at Kosciuszko, Dave Campbell spotted another potential link between the Australian and New Zealand peatlands. A few years back a colleague from New Zealand, Corinne Watts (Landcare Research Hamilton), discovered an unusual moth, *Houdinia flexilissima,* that is specific to the New Zealand restiad "cane rush" *Sporadanthus ferrugineus*. Nicknamed "Fred the Thread", the caterpillar is quite

possibly the world's skinniest. "Fred" leaves highly distinctive tracks as it burrows inside *Sporadanthus* stems, and Dave spotted almost identical tracks on the stems of *Baloskion australe* at Pengelli. If this proves to be a related moth species, it would suggest the moth travelled to New Zealand along with ancestral *Sporadanthus*. The jury is out, however, since no one seems to have studied the Australian insect, or ever reported a mining species from the restiads. Corinne's colleague, Robert Hoare (Landcare Research Auckland), thinks the Aussie "Fred" is probably different from the New Zealand one, because an exit hole found on one *Baloskion* stem suggests the insect pupates outside the stem, whereas *H. flexilissima* pupates inside the stem.

**Baloskion australe *with tracks caused by an unknown mining larva, Pengelli mire, Kosciuszko***


***"Fred" larva and tracks on* Sporadanthus culm, *Torehape, New Zealand. (photo: B. Rhode)***

The IMCG trip has provided a great opportunity to discuss issues in the field and the conference room, learn and share expertise, and initiate collaborations in Australasian mires. We thank Jennie Whinam and her well-oiled team for organising such a stimulating IMCG symposium and for showcasing Australia's amazing mires to an appreciative global audience.

Links to papers on Fred

http://lepidopteraresearchfoundation.org/journals/46/jrl_46_81_89.pdf

http://www.publish.csiro.au/paper/IS06009.htm

**References**

Clarkson, BR, Smale, MC, Williams, PA, Wiser, SK, Buxton, RP 2011. Drainage, soil fertility and fire frequency determine composition and structure of gumland heaths in northern New Zealand. *New Zealand Journal of Ecology* 35: 96–113.

Wagstaff SJ, Clarkson BR 2012. Systematics and ecology of the Australasian genus *Empodisma* (Restionaceae) and description of a new species from peatlands in northern New Zealand. Phytokeys 13: 39–79. doi: 10.3897/phytokeys.13.3259.

## Wetlands and agriculture

# FAO MICCA: Mitigation of Climate Change in Agriculture

**www.fao.org/climatechange/micca/peat/en/**

## Towards climate responsible peatlands management

On October 3, 2013, MICCA's **Community of Practice on Climate Change Mitigation in Agriculture** hosted an online webinar for practitioners, policy makers, entrepreneurs, researchers and civil society organizations interested in responsible management of peatlands and climate change mitigation.

### Presentations and recordings from the webinar

- **Introduction of the webinar**
- Why peatlands matter in regards of climate change mitigation – Hans Joosten, University of Greifswald: **Recording – Presentation slides**
- Spatial distribution of GHG emissions from peatlands and assessment of these emissions in the guidelines of IPCC – Riccardo Biancalani, FAO: **Recording – Presentation slides**
- A review of current and potential climate responsible peatlands management practices – Hans Joosten, University of Greifswald and Closure: **Recording – Presentation slides**

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**Please note that recordings may take a few seconds to load due to their heavy content.*

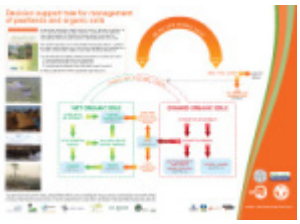
See the **Programme** of the event

To view the workshop report summary – *Towards sustainable land management practices for peatlands: special focus on drained areas* – click here

### Join in!

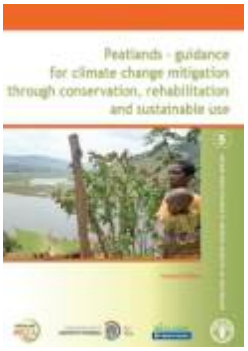
**Are you interested in peatlands and climate change mitigation? You can join the FAO peatland community by filling in the request form.**

### Poster available



**Decision support tree for management of peatlands and organic soils**

### Publications




- **Peatlands – guidance for climate change mitigation by conservation, rehabilitation and sustainable use (second edition)**
- **Nature and Management of Tropical Peat Soils**

## News from all over

**Palm oil firm condemned for destroying peat swamp forest**

In a "historic" ruling an Indonesian court has on January 8, 2014, ordered a palm oil company to pay almost $30 million to the state for illegally clearing 1,000 ha of the Rawa Tripa peat swamp forests in Aceh. The Meulaboh District Court ordered for the confiscation of 5,769-hectare land run by Kalista Alam in Aceh, and for the company to compensate material losses of Rp 114 billion ($9.45 million) and pay environment restoration fees totaling Rp 251 billion. The ruling also set a Rp 5 million daily fine for each day the company delays paying the compensation and restoration costs.

The forest was protected under several laws, including the 2011 decree of President Susilo Bambang Yudhoyono of Indonesia that declared a moratorium on new logging of peat swamps and forests in a $1 billion conservation deal with Norway. On May 13, 2013 the moratorium was extended for another 2 years.

In August, 2011 Kalista Alam had obtained a permit to open the plantation in the area, which was habitat of critically endangered Sumatran orangutans and other rare animals. The Indonesian Forum for the Environment 'Walhi' brought this to court that ruled on Aug. 30, 2012 that the permit should be revoked. The case was seen as a test of the moratorium in the country's notoriously corrupt and mismanaged forestry sector, which has allowed rapid destruction of peat swamp forests to plant palm oil and pulp wood. Several other civil and criminal cases over Tripa forest have been filed with another four companies accused of illegal destruction.

Environmental groups welcomed the decision, saying it was a sign of improved law enforcement and would set a precedent. "This is a clear message to companies working in Aceh who think they can destroy protected forest and get away with it," Muhammad Nur, chairman of the Aceh chapter of Friends of the Earth Indonesia (Walhi), said in a statement. Wetlands International described the court ruling as "ground breaking". "It seems that the many policy improvements introduced by the current government of Indonesia over the last years have started to pay off in terms of stopping the further conversion of peatlands, improving law enforcement and promoting sustainable development," said Marcel Silvius, Wetlands International's head of policy for wetlands and climate.

Kallista Alam will likely appeal the ruling: "The ruling is a threat to the national palm oil business. Indonesia has big areas of peatland. If they are just left alone, they will lose their economic potential".

http://www.thejakartaglobe.com/news/aceh-court-orders-palm-oil-firm-to-pay-for-environmental-damage/

Global Post (www.globalpost.com)

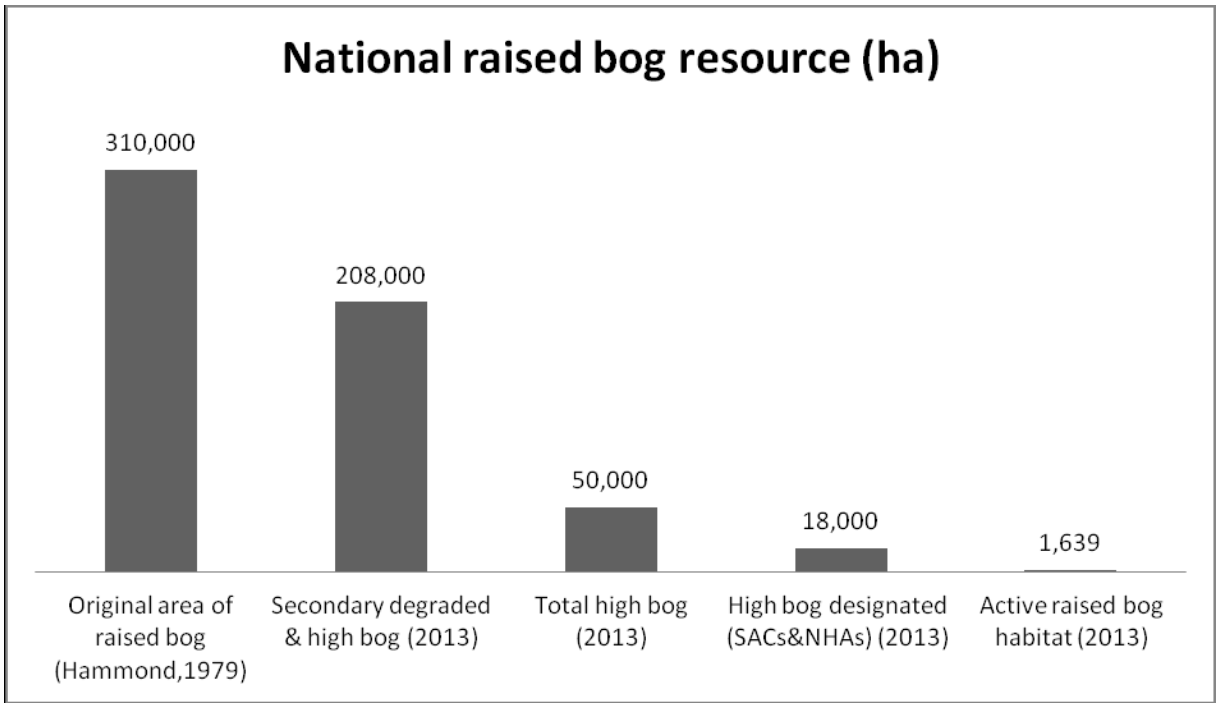
http://www.trust.org/item/20140123103924-5edrg?view=print

**Turf-cutting on protected sites to continue under Irish peatlands plan**

Peat extraction will be allowed to continue on several of the 53 raised bogs of European importance, the Government of Ireland has decided in a major concession to turf-cutters refusing to stop extraction in internationally protected bogs. A draft National Peatlands Strategy was published on Jan. 15, 2014, by Minister for Arts, Heritage and the Gaeltacht Jimmy Deenihan along with a draft management plan for the raised bog special areas of conservation (SAC) and a review of raised bog natural heritage areas (NHAs).

Under the European Union Habitats Directive, Ireland had to submit peatlands for protection in Natura 2000 from 1998. In January 2011 the EU Commission commenced infringement proceedings against the State for its

failure to protect the raised bogs, whereas in June 2011 the Commission issued a reasoned opinion ("final warning"). On 7 March 2012, the Irish parliament Dáil Éireann unanimously agreed to a motion which called on the Government to "engage actively with the European Commission to seek a resolution within the terms of the Habitats Directive, and to prepare and submit a National Raised Bog Restoration Plan to the Commission as a matter of urgency." This urgency is vividly illustrated by the enormous decline of the active raised bog resource in Ireland where only 0.5% of the original extent is still “active” (see graph). As a result of “traditional” peat cutting, the area has declined from 2,630ha in 1994 to 1,639 ha in 2012.




The new management plan “sets out the approach to how each of the raised bog SACs is to be conserved and restored and how the needs of turf-cutters can be addressed”. Under the plan, “continued turf-cutting proposals [are] to be considered where relocation solutions prove elusive”, in line with the Government’s approach to “meeting national conservation targets while addressing the needs of affected communities”. The draft plan proposes to put forward a number of bogs owned by Bord na Mona to function as “compensatory SACs” for the loss of habitat designated under the EU habitats directive. Furthermore, raised bog NHAs are too be “reconfigured to avoid impact on 80 per cent of turf-cutters” – by removing the most heavily cut sites from the list, reducing the number of those involved from more than 3,000 to “around 500”, according to the Minister. Turf-cutting will be allowed to continue on 45 raised bog NHAs that the Minister plans to “de-designation”, whereas peat extraction will be phased out on a further 36 NHAs over a period of three years. Some 25 new sites in public ownership or with few or no turf cutters are proposed to be designated as raised bog NHAs to replace the habitats lost through “de-designation” of the more heavily cut sites. Turf-cutters required to cease cutting on an NHA will be offered compensatory measures similar to those available to turf-cutters from raised bog SACs.

“Since the habitats directive was signed in 1992, Ireland has lacked a coherent, long-term vision for our peatlands. This package of documents now sets out that vision [and] clearly recognise that turf-cutting is a valued traditional activity that will continue, but that the State must also meet conservation obligations,” Minister Deenihan said.

The proposed network is envisaged to have the following advantages over the current network:

1. The areas of both Active Raised Bog and Degraded Raised Bog Still Capable of Natural Regeneration (both protected habitats under the Habitats Directive) will be greater in the new network than in the current network.

2. The new SAC+NHA network will have 14 sites less than the current network, but better represent the ecological and geographical diversity of raised bogs in the country. The new network will significantly improve the geographical range of protected sites to the East, South, West and North.

3. In the short to medium term losses of active bog will be reduced, due to the lower intensity of recent turf-cutting in the new network. Cutting causes drying out adjacent areas of the high bog for decades after the cutting has ceased. The less cutting there has been in recent times the less drying out would be expected to occur in the future.

4. Management complexity in the new network will be much lower due the lower number of sites, high bog area and number of active turf cutters and landowners. The reduced number of sites and high bog area will allow resources to be deployed in a more focused manner.

5. The inclusion of some large Bord na Mona sites, some of which have already had substantial restoration works carried out, will facilitate more rapid restoration in comparison to smaller more numerous privately owned sites where the restoration process will be expected to take longer and cost more per unit area restored.

6. Costs to the tax-payer will be greatly reduced (by about €60m) due to the significantly reduced number of turf-cutters that will be required to stop turf-cutting and who would require compensation (over. 2,500 fewer turf-cutters will be affected in the new network).

The documents with extensive inventory material are available on the department's website and views of the public are invited before April 18th, 2014.

National Peatlands Strategy [PDF, 11MB]
Review of Raised Bog Natural Heritage Areas (NHAs) [PDF, 4MB]
National Raised Bog Special Areas of Conservation (SAC) Management Plan [PDF, 7MB]
Appendices to National Raised Bog Special Areas of Conservation (SAC) Management Plan [PDF, 16MB]
SEA Report [PDF, 14MB]
Natural Impact Statement [PDF, 2MB]

The 'pragmatic approach' of the Irish government has raised mixed reactions. According to Ireland's longest established environmental trust An Taisce, "the draft treats science – and the scientific consensus on the future prospects for humanity without action on climate change – as capable of being bargained away, traded against, or 'balanced' against other factors." Friends of the Irish Environment (FIE), which has been pressing for EU action against Ireland, gave a guarded welcome to the publication of the strategy. "If this work had been done in 1997 when the legislation came into place the violent confrontations that we have witnessed on the bogs over the last two years could have been avoided," FIE director Tony Lowes said.

http://www.irishtimes.com/news/politics/turf-cutting-to-continue-under-peatlands-plan-1.1656450

http://www.irishtimes.com/news/politics/mixed-reaction-to-pragmatic-approach-taken-on-bogs-by-deenihan-1.1656636

***Monivea bog, near Athenry, Co. Galway, Ireland, a EU Natura 2000 priority habitat site. Decimated by machine cutting on the weekend of 26/27 May 2012 – more than 50 plots were cut. (picture: Friends of the Irish Environment 2012).***

**Forestry Commission Scotland publishes strategy for bogs**

The Strategy for Lowland Raised Bog and Intermediate Bog on the National Forest Estate in Scotland 2012-2024 has been produced to provide a framework for the conservation of these peatlands. It details actions to guide forest districts in the management and restoration of these important habitats and informs stakeholders of the intentions.

The report concludes that Forestry Commission Scotland is a key player in managing these peatlands with an estimated portfolio of 4,000ha of lowland raised bog and 4,500ha of intermediate bog that includes 7 SSSI's and 5 SAC's. Over 500ha of lowland raised bog have already been restored from plantation forests on the national forest estate.

The report draws together information from over 70 field visits and detailed GIS analysis to prioritise future conservation work. Conservation work for the period 2012 -2014 includes restoration work at the Flanders Moss complex, Longbridgemuir SAC/SSSI and Ironhirst Moss, completing removal of mature forest plantation, ditch blocking and tree regeneration control over 1,300ha. For a full copy of the report: http://www.forestry.gov.uk/pdf/LRBandIBStrategy.pdf/$FILE/LRBandIBStrategy.pdf

**First completed Everglades Restoration project transferred to local sponsor**

The U.S. Army Corps of Engineers Jacksonville District has transferred the first completed Comprehensive Everglades Restoration Plan (CERP) project to the local sponsor, the South Florida Water Management District

(SFWMD), who will be responsible for the operations and maintenance of the fully-completed Melaleuca Eradication and Other Exotic Plants Research facility.

"The successful transfer of this project demonstrates the Corps of Engineers' commitment to getting projects not only constructed, but also officially turned over to our local sponsors after completion," said Jacksonville District Commander Col. Alan Dodd. "We have a lot of projects in the works, and we will continue to push forward in our project execution and completion goals."

The Melaleuca Eradication and Other Exotic Plants Research Annex, located in Davie, Fla., will serve as a new facility to raise insects that will be used as a biocontrol measure to manage invasive plants. Construction of the facility began in July 2011, with federal funding provided through the American Recovery and Reinvestment Act (ARRA) of 2009.

While the Melaleuca project was the first CERP project to be officially completed and transferred, the Corps also recently transferred another CERP component to the SFWMD, the Lake Okeechobee Aquifer Storage and Recovery (ASR) Pilot Project and facility, located adjacent to the Kissimmee River in Okeechobee County. The facility includes pumps, structures, buildings, wells, and treatment system.

For additional information on the Melaleuca Eradication and Other Exotic Plants Research Annex, the Lake Okeechobee ASR pilot project and other Everglades restoration efforts, visit: www.evergladesplan.org.

**End of oil sands peatlands research in Alberta?**

The new federal-provincial Joint Oilsands Monitoring (JOSM) agency in Alberta will exclude wetlands (incl. peatlands) and groundwater from its monitoring plans, even though peatlands cover 40 per cent of the landscape in the northeast oilsands area. This decision has been made public in the beginning of January. “It does seem a little strange,” said Kelman Wieder from Villanova University in Pennsylvania, who was expecting a renewal of a grant to follow up on their study in the Fort McMurray area. In the last four years, scientists studying 20 bogs over a 500-kilometre area centred in the open pit mines, found that the higher nitrogen levels in the air coming from the oil sands plants and big trucks are likely to lead to more shrub growth and to have a negative impact on the functioning of the bogs. “Our prediction is there will be greater shrub growth that will shade out the moss (which turns into peat)”, said Wieder, “Full development of the oilsands will decrease the natural peatland sink by 12.5 per cent”.

http://www.edmontonjournal.com/business/Funding+cuts+spell+oilsands+peatlands+research/9392206/story.html

## Upcoming events (see also http://www.imcg.net/pages/events.php)

**Wetlands 2014 Congress in Huesca, Spain**

The SWS IX European Wetland Congress Wetlands Biodiversity and Services: Tools for Socio-Ecological Development will be held in Huesca, Spain, **14 - 18 September 2014**. This plans to be a meeting point for professionals and persons interested in the integration of land and wetland uses for the sustainable development of people, in addition to formal specialized sessions on all the research and management aspects of wetlands. Particular emphasis will be given to topics dealing with wetlands restoration and creation and the integration of wetlands with socio-ecological issues. So far at least one session on peatlands is planned, “Peatlands: ecology, sustainable use and contributions to socio-ecological development” coordinated by Catherine Farrell, Chair of IPS Commission V, and Eduardo González Sargas of the Peatland Ecology Research Group (PERG). The Conference will be a forum for meeting farmers, managers, decision makers, GOs and NGOs, scientists, and professionals to present experiences, prospects, and expectations on the integration of land, water, biodiversity and other resources for contributing to a wise socio-ecological development. Proposals for sessions and presentations can be submitted until **1 April 2014**. Two excursions are part of the interesting program. For more information see www.wetlands2014.eu.

## Recent scientific publications: peatland conservation

Every month a wealth of scientific papers are published, many of which have relevance for peatland management and mire conservation. In this column we present the title and the URL of a selection of these papers. The selection does not aim at completeness and will inevitably be biased by the (wide…) interest of the compiler (Hans Joosten). If you want to share papers that you fear otherwise would be missed, please send title and URL to joosten@uni-greifswald.de

Vegetation, fauna and groundwater interrelations in low nutrient temperate montane peat swamps in the upper Blue Mountains, New South Wales: http://www.rbgsyd.nsw.gov.au/science/Scientific_publications/cunninghamia/contents_by_volume/volume_12#twelvefour

Upland wetlands in the Namoi Catchment: mapping distribution and disturbance classes of fens, bogs and lagoons: http://www.rbgsyd.nsw.gov.au/__data/assets/pdf_file/0003/133635/cun131hun331.pdf

Carbon emissions and removals from Irish peatlands: present trends and future mitigation measures: http://www.tandfonline.com/eprint/8PPNCAvGJbmHyS6kcngJ/full#.UsU2ROJR-P0

The ecological consequences of megafaunal loss: giant tortoises and wetland biodiversity: http://onlinelibrary.wiley.com/doi/10.1111/ele.12203/abstract

Impact of sea level rise on the 10 insular biodiversity hotspots: http://onlinelibrary.wiley.com/doi/10.1111/geb.12093/abstract

Microtopography and the properties of residual peat are convenient indicators for restoration planning of abandoned extracted peatlands: http://onlinelibrary.wiley.com/doi/10.1111/rec.12030/abstract

Woody debris amendment enhances reclamation after oil sands mining in Alberta, Canada: http://onlinelibrary.wiley.com/doi/10.1111/rec.12029/abstract

Fitness in naturally occurring and restored populations of a grassland plant *Lychnis flos-cuculi* in a Swiss agricultural landscape: http://onlinelibrary.wiley.com/doi/10.1111/rec.12020/abstract

Quaternary paludal tufas from the Ben Younes spring system, Gafsa, southwestern Tunisia: Interactions between tectonics and climate: http://www.sciencedirect.com/science/article/pii/S1040618213009506

Changes in trait divergence and convergence along a productivity gradient in wet meadows: http://www.sciencedirect.com/science/article/pii/S0167880913004362

Increased invasive potential of non-native *Phragmites australis*: elevated $CO_2$ and temperature alleviate salinity effects on photosynthesis and growth: http://onlinelibrary.wiley.com/doi/10.1111/gcb.12346/abstract

Carbon dioxide emissions through oxidative peat decomposition on a burnt tropical peatland: http://onlinelibrary.wiley.com/doi/10.1111/gcb.12296/abstract

Inertia in an ombrotrophic bog ecosystem in response to 9 years' realistic perturbation by wet deposition of nitrogen, separated by form: http://onlinelibrary.wiley.com/doi/10.1111/gcb.12357/abstract

Methane as a carbon source for the food web in raised bog pools: http://www.bioone.org/doi/abs/10.1899/12-121.1

Results of an Odonata survey carried out in the peatlands of Central Kalimantan, Indonesia, in 2012: http://www.dragonflyfund.org/faun-studies-se-asia.html

Methanotrophy induces nitrogen fixation during peatland development: http://www.pnas.org/content/early/2013/12/26/1314284111.abstract

Mapping ecosystem services: The supply and demand of flood regulation services in Europe: http://www.sciencedirect.com/science/article/pii/S1470160X13004287

*Tetroncium* and its only species, *T. magellanicum* (Juncaginaceae): distribution, ecology and lectotypification: http://www.ingentaconnect.com/content/bgbm/will/2013/00000043/00000001/art00002

Trajectories of plant recovery in block-cut peatlands 35 years after peat extraction: http://biometria.kee.hu/pdf/1103_385406.pdf

Mangrove habitat dynamics in response to Holocene sea level and climate changes along southwest coast of India: http://www.sciencedirect.com/science/article/pii/S1040618213009658#

Morpho-stratigraphic characterization of a tufa mound complex in the Spanish Pyrenees using ground penetrating radar and trenching, implications for studies in Mars: http://www.sciencedirect.com/science/article/pii/S0012821X13006936

Family affiliation, sex ratio and sporophyte frequency in unisexual mosses: http://onlinelibrary.wiley.com/doi/10.1111/boj.12135/abstract

Palm snorkelling: leaf bases as aeration structures in the mangrove palm (*Nypa fruticans*): http://onlinelibrary.wiley.com/doi/10.1111/boj.12133/abstract

Phylogeography and ecological niche modelling, coupled with the fossil pollen record, unravel the demographic history of a Neotropical swamp palm through the Quaternary: http://onlinelibrary.wiley.com/doi/10.1111/jbi.12269/abstract (about *Mauritia flexuosa*)

The transition zones (ecotone) between boreal forests and peatlands: Modelling water table along a transition zone between upland black spruce forest and poor forested fen in central Saskatchewan: http://www.sciencedirect.com/science/article/pii/S0304380013005796

Seasonal changes in peatland surface elevation recorded at GPS stations in the Red Lake Peatlands, northern Minnesota, USA: http://onlinelibrary.wiley.com/doi/10.1002/2013JG002404/abstract

The influence of climate change on recent peat accumulation patterns of *Distichia muscoides* cushion bogs in the high-elevation tropical Andes of Colombia: http://onlinelibrary.wiley.com/doi/10.1002/2013JG002419/abstract

Island biogeography of tropical alpine floras: http://onlinelibrary.wiley.com/doi/10.1111/jbi.12212/abstract

Plant functional types define magnitude of drought response in peatland $CO_2$ exchange: http://www.esajournals.org/doi/abs/10.1890/13-0270.1

Similar methane fluxes measured by transparent and opaque chambers point at belowground connectivity of *Phragmites australis* beyond the chamber footprint: http://www.sciencedirect.com/science/article/pii/S0304377013001691

The effects of temperature and nitrogen and sulphur additions on carbon accumulation in a nutrient-poor boreal mire: decadal effects assessed using $^{210}$Pb peat chronologies: http://onlinelibrary.wiley.com/doi/10.1002/2013JG002365/abstract

Nutrient resorption of two evergreen shrubs in response to long-term fertilization in a bog: http://link.springer.com/article/10.1007/s00442-013-2784-7?wt_mc=alerts.TOCjournals

Biogeochemical effects of simulated sea level rise on carbon loss in an Everglades mangrove peat soil: http://link.springer.com/article/10.1007/s10750-013-1764-6?wt_mc=alerts.TOCjournals

Microbial respiration in Arctic upland and peat soils as a source of atmospheric carbon dioxide: http://link.springer.com/article/10.1007/s10021-013-9710-z?wt_mc=alerts.TOCjournals

Agricultural expansion and its impacts on tropical nature: http://www.sciencedirect.com/science/article/pii/S0169534713002929

Investigating the respective impacts of groundwater exploitation and climate change on wetland extension over 150 years: http://www.sciencedirect.com/science/article/pii/S0022169413008639

Environmental impacts of large-scale oil palm enterprises exceed that of smallholdings in Indonesia: http://onlinelibrary.wiley.com/doi/10.1111/conl.12039/abstract

Misleading numbers: The case for separating land and fossil based carbon emissions: http://www.fern.org/sites/fern.org/files/misleadingnumbers_full%20report.pdf

Temporary streams in a peatland catchment: pattern, timing, and controls on stream network expansion and contraction: http://onlinelibrary.wiley.com/doi/10.1002/esp.3533/abstract

Empirical modelling of vegetation abundance from airborne hyperspectral data for upland peatland restoration monitoring: https://www.mdpi.com/2072-4292/6/1/716

Limited response of peatland $CH_4$ emissions to abrupt Atlantic Ocean circulation changes in glacial climates: http://www.clim-past.net/10/137/2014/cp-10-137-2014.pdf

Combustibility of biomass from wet fens in Belarus and its potential as a substitute for peat in fuel briquettes: http://mires-and-peat.net/map13/map_13_06.pdf

Mires and mire types of Peninsula Mitre, Tierra del Fuego, Argentina: http://mires-and-peat.net/map14/map_14_01.pdf

Suitability of degraded peat for constructed wetlands — Hydraulic properties and nutrient flushing: http://www.sciencedirect.com/science/article/pii/S0016706114000056

The role of mineral soil topography on the spatial distribution of organic layer thickness in a paludified boreal landscape: http://www.sciencedirect.com/science/article/pii/S0016706114000123

**Please send your contribution to the IMCG Bulletin by the 20th of each month: peatland@mweb.co.za**