IMCG Bulletin: January/February 2017

INTERNATIONAL MIRE CONSERVATION GROUP

www.imcg.net

Word from the Secretary-General

Dear mire friends

Indeed, you missed the January 2017 issue of your beloved IMCG Bulletin. We decided to merge the January and February issues in order to compile the extensive registers to the European Mires Book. Last Wednesday we have submitted the final proofs so that the publisher can start printing the book in order to have it ready for launch at the Climate Convention meeting in Bonn, May 2017.
This also implies that you have **until March 15** the **LAST OPPORTUNITY** to order your copy of the book for the **special IMCG member discount**! **SEE BELOW!**

Another **deadline** we have with the **registration** for the IMCG Field Symposium to **Arctic Russia**. Please read the Bulletin and fill in the form at the end of the Bulletin **until March 14**!

Keep on sharin your ideas and experiences with your fellow-IMCGers by sending news and discussion items, relevant photographs and other contributions for the next Bulletin by 31 March 2017 to Hans Joosten at joosten@uni-greifswald.de.

IMCG News

European Mires Book. Last chance for special discount for IMCG members!

Mires and peatlands of Europe. Status, distribution and conservation. Edited by Hans Joosten, Franziska Tanneberger & Asbjørn Moen. With contributions of 134 authors. X + 781 pages, 205 figures, 218 tables, 112 colour photos, 21x28cm, c. 2.5 kg, bound, English. Price: €94.00. See summary table of Contents in November Bulletin and a country map from the print proofs in the December Bulletin.
IMCG members can until March 15, 2017 order specially discounted copies for the price of €69.00 + shipping charges (Germany €6.50, other EU-countries €12.20, other countries €14.40). Order your copies directly at the publisher: mail@schweizerbart.de and mention your IMCG membership! Use this one-off opportunity to acquire this IMCG masterpiece at a discounted price!

Mires and Peat
Find the journal online at http://mires-and-peat.net/.
In January and February 2017 Mires and Peat has published the following articles:

- Holocene fire history: can evidence of peat burning be found in the palaeo-archive? (S.L. New, C.M. Belcher, V.A. Hudspith and A.V. Gallego-Sala) Volume 18: Article 26.
- Holocene elemental, lead isotope and charcoal record from peat in southern Poland. (K. Tudyka, A. Pazdur, F. De Vleeschouwer, M. Lityńska-Zając, L. Chróst and N. Fagel) Volume 19: Article 07.
- Ten-year results of a comparison of methods for restoring afforested blanket bog (R. Anderson and A. Peace). Volume 19: Article 06.
- Consolidation of gyttja in a rewetted fen peatland: Potential implications for restoration (S. Malloy and J.S. Price) Volume 19: Article 05.

- Biosorption of hexavalent chromium from aqueous solutions using highly characterised peats (A.M. Rizzuti, C.R. Newkirk, K.A. Wilson, L.W. Cosme and A.D. Cohen) Volume 19: Article 04
- Quality loss of Swiss bog vegetation - the key importance of the margins (E. Feldmeyer-Christe and M. Küchler) Volume 19: Article 03.
- Characterisation of Holocene plant macrofossils from North Spanish ombrotrophic mires: bryophytes (M. Souto, D. Castro, X. Pontevedra-Pombal, E. Garcia-Rodeja and M.I. Fraga) Volume 19: Article 02.
- Towards ecosystem-based restoration of peatland biodiversity (T.Yu. Minayeva, O.M. Bragg and A.A. Sirin) Volume 19: Article 01.

Send your new manuscripts on any topic relating to mires, peatlands and peat to the Editor-in-Chief Olivia Bragg: o.m.bragg@dundee.ac.uk

IMCG field symposium 'Mires of the Northern Part of European Russia' (22 July – 4 August 2017)

Tatiana Minajewa (tania.minajewa@gmail.com)

Please be aware that during the event we plan two workshops for which we welcome your presentations. The first event is the International Symposium "Mires of Northern Europe" to be held in Syktyvkar, 28 July, in the Institute of Biology Republic Komi. Next to our international IMCG team, many people from Russia will participate in the Symposium and the one day excursion on the 29th, as the event has been widely announced in Russia. We will be happy to host also presentations from other parts of the world, especially to share methodological aspects as we expect participation of young Russian scientists. We can accommodate around 20 presentations and an unlimited number of posters. The topics are:

1. Biological diversity of mire ecosystems, mapping and monitoring
2. Development and functioning of natural and disturbed mire ecosystems
3. Conservation, wise use and management of mire ecosystems
4. The role of mires in carbon pool conservation and GHG emission regulation especially in permafrost areas
5. Modern methods of peatland restoration.

The excursion area. Photo: Igor Lavrinenko

The second workshop on ecological restoration will be held in Naryan-Mar on August 3rd. There we expect many Russian participants from oil and gas exploitation companies and enterprises. Main themes are

1. Principle and approaches of ecological restoration – political, practical and philosophic aspects

2. Case studies of ecological restoration
3. Integration of ecological restoration into economic development and policy.

The proceedings of both workshops will be published in one volume. Contributions up to 5 pages are welcome.

Additional practical information

The real deadline for expression of interest to participate is March 15th. No more announcements will follow via the IMCG bulletin. Those, who already expressed their interest, have received a letter to explain visa application and payment procedures. For those who have not yet decided, the following information may be helpful:

The participation fee is 850 EUR. This fee covers:

- Visa support (please check visa regime between your country and Russian Federation) and registration (which is demanded for all foreign participants, even those, who do not need visa)
- Permits for visiting the border zone (Pechora Delta) and the protected areas (Nenets Nature Reserve and Yugyd va National Park)
- Airport transfers in Syktyvkar and Naryan-Mar
- Full board and lodging during the first slot: Polar Urals mires, Inta, 22 – 26 July
- Transportation from Inta to Syktyvkar on July 27th
- Transportation and food during all field excursions
- Coffee breaks during workshops
- Simultaneous translation during both workshops and the excursion on the 29th
- Consecutive translation during the other field excursions

The fee does not cover:

- Transportation from your place to Inta (normally via Moscow – we recommend to take a direct train which takes around 40 hours and costs around 150 EUR). The cost of the flight to Moscow depends on your destination. There are plenty of low-cost airlines nowadays from Europe – combining Ryanair and Pobeda, for example
- Transportation from Syktyvkar to Naryan-Mar (we are currently negotiating a special flight with "Komiavia", may be with large discount) – around 100 EUR from person
- The hotel in Syktyvkar for 3 days with costs of minimally 240 EUR. It is much cheaper (30 EUR a day) to rent a flat, which works via booking.com or we can help you
- The hotel in Naryan-Mar (an extremely expensive place!), for 4 days. They are really crazy! We will try to negotiate a discount, so that the costs are maybe 50 EUR per night. We also have a "dormitory" there, which costs 500 roubles (10 EUR) and has a sort of "field" conditions (shared shower, 4 people in a room).
- Lunches during the workshops (if the coffee breaks do not cover your hunger) and "come together" parties
- The flight from Naryan-Mar back to your place (possible via Archangelsk, St Petersburg, Moscow)
- On top of the fee, your costs would amount to around 1000 EUR if you come from Europe with variations depending on comfort level. For overseas participants it will be a bit more expensive.

For any further questions please address Tatiana Minajewa: Tania.minajewa@gmail.com

News from the regions

Global

Global Symposium on Soil Organic Carbon, 21 - 23 March 2017 in Rome.

The Intergovernmental Technical Panel on Soils (ITPS) and the Intergovernmental Panel on Climate Change (IPCC), supported by FAO, are jointly organizing the Global Symposium on Soil Organic Carbon (GSOC17) to discuss and elaborate the latest information on the role of Soil Organic Carbon in the climate change agenda. The scientific meeting will be held at FAO Headquarters in Rome, Italy from 21-23 March 2017 and will cover the following themes:

1. Measuring, mapping, monitoring and reporting Soil Organic Carbon (SOC)
2. Maintaining and/or increasing SOC stocks (fostering SOC sequestration) for climate change mitigation and adaptation, and Land Degradation Neutrality
3. Special focus: Managing SOC in soils with high SOC: peatlands, permafrost, and black soils (Mollisols, Chernozems/ Kastanozems/ Phaeozems)

Online registration under http://www.fao.org/about/meetings/soil-organic-carbon-symposium/en/

Asia

ASEAN sets priorities to address transboundary haze pollution in Mekong sub-region

ASEAN Ministers and representatives responsible for land, forest fires and haze from Cambodia, Lao PDR, Myanmar, Thailand and Viet Nam gathered in northern Thailand on February 24, 2017 to discuss transboundary haze pollution. "Following the adoption of the Roadmap on ASEAN Cooperation towards Transboundary Haze Pollution Control in August 2016 in Kuala Lumpur, it is now time for the implementation to take place," said Vongthep Arthakaivalvatee, Deputy Secretary-General for ASEAN Socio-Cultural Community Department. The Mekong countries have all agreed to set priorities for the sub-region and pledged to work closely with each other and all interested international partners to address transboundary haze pollution. Progress in developing new projects to address peatland conservation as well as fire and haze prevention in the region was highlighted at the meeting.

http://asean.org/asean-sets-priorities-to-address-transboundary-haze-pollution-in-mekong-sub-region/

40th ASEAN - EU partnership: commit to new environmental programmes

In the year of the 40th anniversary of their cooperation, the European Union and ASEAN started two new programmes on sustainable use of peatlands and haze mitigation, as well as biodiversity conservation in ASEAN. "The two new programmes on sustainable use of peatlands and biodiversity conservation further signify and strengthen the long-standing relationship between ASEAN and EU. They reflect the shared goals and commitment of ASEAN and EU in environmental protection and sustainable development," said ASEAN Secretary-General Le Luong Minh at the celebrations in the ASEAN Secretariat in Jakarta on March 2, 2017.

With a budget of EUR 20 million, the Sustainable Use of Peatland and Haze Mitigation in ASEAN (SUPA| 2016-2019) programme aims to promote the sustainable management of peatlands in the ASEAN region, fight collectively against transboundary haze pollution, sustain local livelihoods, and reduce the risk of fire and associated haze. This will also contribute to the mitigation of carbon emissions from peatland, in addition to conservation of the unique peatland ecosystems biodiversity. The second programme, Biodiversity Conservation and Management of Protected Areas in ASEAN (BCAMP | 2016-2021), with EUR 10 million EU budget contribution, aims to enhance the conservation of biodiversity and effective management of protected areas in the ASEAN region. It will target the network of existing and potential ASEAN Heritage Parks to reduce biodiversity loss.

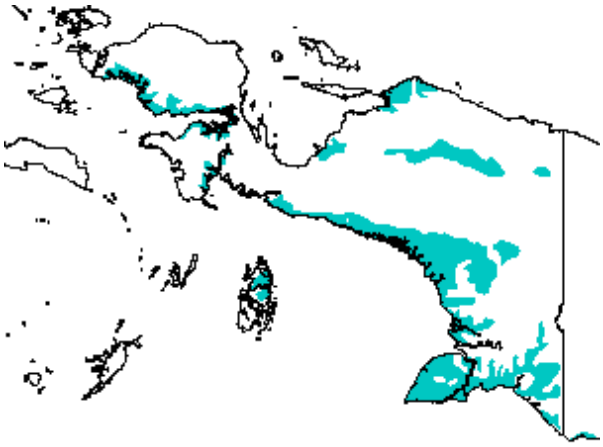
http://asean.org/asean-eu-launch-40th-anniversary-of-partnership-commit-to-new-programmes-on-environment-2/

Nightly peatland fire in Indonesia (photo: Hans Joosten)

Indonesia

Papua commits to protect at least 83 percent of its land

The Indonesian Province of Papua, comprising 40% of the island of New Guinea (an area of the size of Norway) has on February 23, 2017 publicly committed to protect at least 83 percent of its land area as undisturbed natural habitat. The commitment was made by Assistant Governor Elia Loupatty, accompanied by the heads or representatives of 13 provincial agencies in Papua. "This is a remarkable milestone—one that should echo around the world," said Judith Dipodiputro, coordinator of Project Papua, an initiative of Indonesian President Joko Widodo that is promoting sustainable development in the region. The initiative is receiving technical support from Project Papua, the Wildlife Conservation Society-Indonesia, and James Cook University in Australia.



The Indonesian Province of Papua with in blue the distribution of peatlands.

The 83 percent figure for conservation — which could reach as high as 90 percent and would include many peatland — follows from a government plan that maps future development in the province. "Papua faces many development challenges," said Dr Noak Kapisa, director of the Papuan Environment Office. "It has thousands of remote villages, needs to expand agriculture, and is building a Trans-Papuan Highway across the Province." Professor Bill Laurance from James Cook University said a key challenge for the province is balancing economic development and building some 4,000 kilometers of major roads while still meeting the 83 percent pledge.

But Laurance was quick to praise the Papuan government. "I've been involved in nature conservation for 35 years and this is probably the most impressive commitment I've seen," he said. "To meet its ambitious

conservation goals, Papua is going to need financial support from the international community and federal government," said Ms Dipodiputro. "It's one of our best chances ever to protect a vast, environmentally critical region for the benefit of Indonesians and future generations," said Mr Loupatty.
For further information: Bill Laurance: bill.laurance@jcu.edu.au; Ms Tisna Nando, Wildlife Conservation Society-Indonesia: snando@wcs.org ; Ms Judith Dipodiputro, Project Papua: judith.dipodiputro@gmail.com.

Developments in Indonesia

In Indonesia, serious efforts are being taken to ensure no more transboundary haze will happen this year. The Peatland Restoration Agency (Badan Restorasi Gambut BRG) is doing all it can to help avoid fires, train fire control teams and rehabilitate degraded areas. Among the efforts are preparation of groundwater wells to provide water during dry spells and fire events. BRG has launched a rehabilitation fund and installed water level monitors in selected locations.
Legally, Indonesia is taking stringent action/ measures on perpetrators, whether they are individuals or companies. Unused lands and concessions are being converted back into protected areas.
Various Ministerial Regulations on water level monitoring and rehabilitation have already been issued to aid the process .

HSBC overhauls deforestation policy after Greenpeace investigation

HSBC has launched a new zero-deforestation policy after a Greenpeace investigation found a link between the banking corporation and organisations destroying Indonesia's forests and peatland. The new policy requires its customers to commit to protecting natural forest and peat by 30 June 2017 by publishing their own forest protection policies. It also says the bank will no longer provide funding to companies involved in any kind of deforestation or peatland clearance, breaking its links with destructive palm oil corporations.
More than 200,000 people around the world signed a petition to put pressure on HSBC thanks to a Greenpeace campaign that also encouraged people to send emails directly to the bank's CEO and protest outside high street branches. The campaign intensified after Greenpeace's international report last month, which alleged that HSBC had formed part of a funding syndicate that offered $16.3bn in loans to six palm oil companies that were linked to the destruction of large areas of rainforest and peatland in Indonesia.
The bank also revealed that it has joined the Tropical Rainforest Alliance, hosted by the World Economic Forum, and will seek to become a member of the Cambridge Institute for Sustainability Leadership's Banking Environment Initiative.
http://www.foodingredientsfirst.com/news/HSBC-Denies-Deforestation-Loans-for-Indonesian-Palm-Oil-Industry?type=article
http://www.ethicalcorp.com/hsbc-overhauls-deforestation-policy-after-greenpeace-investigation

Malaysia

Second meeting of ASEAN Task Force on Peatlands (ATFP) in Putrajaya, Malaysia

On 13 February 2017, a regional Peatland Governance Workshop on The Implementation of APSMPE 2014-2020: Successes, Challenges and Roadmap for Sustainable Peatland Management Programme was held in Putrajaya. During the meeting, member state delegates presented the progress of peatland conservation in their countries, followed by a discussion on peatland research, development and innovation efforts in Malaysia. Speakers were from the Forest Research Institute of Malaysia (FRIM), Putra University, Malaysia (UPM) and Global Environment Centre. This was followed by the 2nd ATFP Meeting on 14 February 2017, which discussed various programmes that are in the pipeline for implementation in ASEAN member states. Among them were ASEAN-EU Sustainable Use of Peatland and Haze Mitigation in ASEAN (SUPA) by EU & GIZ; GEF-6 Project on Sustainable Management of Peatland Ecosystems in Mekong Countries by IUCN, and GEF-5 Projects on Sustainable Management of Peatland Ecosystems in Indonesia (SMPEI) and Malaysia (SMPEM) by IFAD. On 15th February 2017, the delegation visited the Centre of Excellence for North Selangor Peat Swamp Forest, Compartment 73 of the Raja Musa Forest Reserve. They also visited Sungai Sireh village where an ecotourism programme for peatlands is being developed.

IMCG 2016 visiting the Centre of Excellence for North Selangor Peat Swamp Forest (photo: Hans Joosten)

Europe

Germany

RRR2017 Conference "Renewable Resources from Wet and Rewetted Peatlands"

The deadline for abstract submission has been extended until March 31st !

The Greifswald Mire Centre warmly invites to you to the conference week „Renewable Resources from Wet and Rewetted Peatlands 2017" (www.rrr2017.com) from 25th - 30th September 2017. This 2nd international conference on utilisation of wetland plants will comprise a national and an international part, a day of excursions and a Sphagnum farming workshop. The conference aims to continue the exchange that has started with the 2013 1st RRR conference (http://www.paludiculture.uni-greifswald.de/en/projekte/rrr2013/).

Peatland protection in South Germany - situation, key factors, future, 26-27 April, 2017, Biberach

In the South-German federal states Bavaria and Baden-Wurttemberg peatlands are mainly found in the low mountain ranges. Landscape conditions and historical land use as well as peatland protection are very similar and consequently long-term cooperation on peatland conservation has developed between forestry administration and nature conservation authorities of both states. The conference will inform on peatland conservation in southern Germany by presentations, practical examples and excursions. Online-registration until April, 5, 2017: www.fva-bw.de

Russia

Galkina readings in St Petersburg

Viktor Smagin (amgalan@list.ru)

The 8th Readings devoted to the memory of Ekaterina Galkina (so called 'Galkina readings'), a traditional extended meeting of the Mire Science Panel of the Russian Botanical Society (RBS), took place on February 2-3, 2017, at the V.L. Komarov Botanical Institute of the Russian Academy of Science in St Petersburg. The meeting was dedicated to World Wetlands Day (February 2), the 120th anniversary of Ekaterina Alekseyevna Galkina, the 80th anniversary of her publication 'Airplane Use in Plant Geography Studies', and the 80th anniversary of remote sensing studies of peatlands in Russia. The tradition to name the extended meetings of the RBS Mire Science Panel held in early February as Galkina Readings and to dedicate them to World Wetlands Day began in 2007 with a celebration of the 110th anniversary of E.A. Galkina. The numbers of participants and talks have been growing ever since, with the most spectacular changes having occurred in the last two years. In 2017, 63 participants were present and 36 talks were given by scientists representing 23 organizations. The abstracts of the talks (including four that were not presented due to absence of the authors) are published in the proceedings: http://www.binran.ru/files/publications/Proceedings/Proceedings_Mire/VIII_Galkinskii_Chteniya_Proceedings.pdf

Never before did the participants represent such a wide range of Russian regions, from Kaliningrad to Magadan. The list of research items discussed at the meeting grew as well, with soil science and entomology completing traditional plant geography, hydrology, peat science, plant geography, and bryology. For the first time, representatives of five strict nature reserves and national parks took part in the meeting. With such a development trend, the format of the 'Galkina Readings' should be changed to a three-day conference instead of a two-day meeting. From the coming year on, also international colleagues will be invited to participate in the meeting. Pictures from the event can be found under: http://www.binran.ru/gallery/61/

We will keep IMCG members informed on the dates of the next conference.

Komarov Botanical Institute RAS
Russian Botanical Society

From the Foreword to the Proceedings of the 8th Galina readings

Tatiana Yurkovskaya (Yurkovskaya@hotmail.ru)

The VIIIth 'Galkina Readings' were devoted to a significant date - the 80th anniversary of the publication of Ekaterina Alekseyevna Galkina's article "Application of aircraft in the detailed study of mires" in the book "The use of aircraft for geobotanical studies", edited by Y.D. Zinserling (Galkina 1937). In November 2017 we will also celebrate that it is 120 years ago that Ekaterina Alekseyevna was born. By tradition, we hold the extended meeting of the mire science section of the Russian Botanical Society on international Wetlands Day, with which I congratulate everyone involved.

Ekaterina Alekseyevna Galkina was an outstanding scientist, laureate of the State Prize, who devoted her entire scientific activities to the study of mires. In her works she addressed fundamental questions of science.

Galkina was among the first to use aerial photography for the study of mires. She developed and implemented the practice of exploring mires by combined aerial and ground methods, which is still paramount in the study of mires. She interpreted mire features on aerial photographs. And she was also the first to use them for mapping mire vegetation.

During the Great Patriotic War (1941-1945) Galkina remained in besieged Leningrad and served the needs of the front, dealing with questions of disguise and accessibility of mires. Galkina's main merit as a scientist was that she was able to link different areas of mire study (geobotany, hydrology, geography, etc.) into a single multi-dimensional concept. In 1946 she proposed a classification of mires, in which she managed to integrate all disciplines.

Galkina in the Botanical Garden in 1949 on the occasion of the receipt of the State Stalin Prize.

Modern mire studies cannot be conceived without the use of remote methods: aerial and satellite imagery, remote sensing, etc. Especially important and widely used are these methods in geographical studies and mapping of mires, the zonation and analysis of vegetation structure, the study of mire hydrology and hydrography, the exploration of peat deposits, and practically, and in the day to day practice of the construction of various linear infrastructure (such as oil and gas pipelines, roads, etc.).
As always, our theme is not confined to the key theme in the title. We consider the Galkina Readings as a platform on which mire scientists can share their ideas and results of new research. And we are very glad that the circle of researchers participating in the Readings is not only expanding geographically, but also thematically.

Галкина Е.А. 1937. Применение самолета при детальном изучении болот / Применение самолета при геоботанических исследованиях (под ред. Ю.Д. Цинзерлинга). М.; Л.. С. 105–124.

Foreword

Tatiana Minajewa (tania.minajewa@gmail.com)

The following case study was presented by Galina Ukrainskaya during the Galkina Readings. The peatland reported on had been included in the first Soviet list of valuable mires compiled by Marina Botch and Victor Masing for the IUCN programm “Telma” list published in the “Mire ecosystems of the USSR”. We organised translation of this study (by Olga Sikora with support of the PeatRus project) to remind IMCG members of this and many others high mountain peatlands, which are disappearing even before they are recognised. IMCG had its field symposium in Georgia in 2009, where we could see for ourselves how fragile the peatland ecosystems in the Caucusus are. I am not sure whether we can soon visit this region as a group for a second time. But we would like to stimulate all who have possibility to work in the region: please collect information, make it available for wider society, find the sites and mobilise local scientists who are usually not aware of the existence of peatlands. Based on the knowledge you provide, they can proceed with investigations and bring the significance of peatlands for the maintenance of water supply, landscape stability, biodiversity and finally – livelihoods, to the attention of local communities and governments.

Tarskoye Peatland

Galina Ukrainskaya (Doroshina) (marushka-le@mail.ru)
Laboratory of lichenology and bryology
Komarov Botanical Institute Russian Academy of Sciences (St Petersburg)

The Tarskoye Peatland is located in southeastern suburbs of Vladikavkaz, at the right-side bank of the Terek River, 2.5 km from the village of Tarskoye. Occupying a small lateral Tarskaya valley between the Pastbischny and Lesisty ridges at an altitude of 835 m, it is bounded by slopes of Mount Izvestkovaya (1245 m) at the south and Mount Tarskaya (1125 m) at the north. The peatland is approximately 800 m long in latitudinal direction, with its central portion measuring 400 m across. Soils were formed by loam sediments with fragments of crystalline rocks. The peatland is fed by atmospheric precipitation (842 mm/year) and direct runoff from the slopes of Mount Izvestkovaya. The mire has an oblong shape and covers between 26.6 and 18.4 ha according to different sources. Judging by runoff character and floral composition, the peatland is similar to bogs, however the CaO content measuring 6.2 mg/l in one of our *Sphagnum* sampling sites places it among fens. Thus, it seems to be a transition mire (Tarnogradsky 1947). The Tarskoye Peatland has the following GPS coordinates: 42° 57' 30'' N, 44° 43' 15'' E at an altitude of 805 m a.s.l.

Sphagnum mosses of the Tarskoye Peatland were first mentioned in the above publication by Tarnogradsky, and some moss samples collected by him are kept in the herbarium of the Botanical Institute, RAS. The herbarium samples were identified by D.K. Zerov, and therefore samples collected in 1939 may also be kept in the herbarium at the Institute of Botany, NAS, in Kiev.

According to observations by Tarnogradsky, the Tarskoye Peatland in 1939 was a hummock and hollow complex, with low and closely placed *Sphagnum* hummocks that were surrounded with a wetter *Sphagnum* belt at the periphery, without pools. The closed moss cushion was dominated by *Sphagnum magellanicum* Brid*, S. centrale* C.Jens. ex H.Arnell et C.Jens, and *S. subsecundum* Nees ex Sturm. Under the living *Sphagnum* cushion 10-20 cm deep there lies a moss peat layer of 0-60 cm deep (Tarnogradsky 1947).

One should note that Tarnogradsky studied sphagna mosses at odd moments only, as habitat to microflora and microfauna of sphagna communities in the Caucasus. In early July 2013, we visited Tarskoye Peatland to study its moss flora. In dense stands of vascular plants we discovered a small number of dry *Sphagnum* tussocks. Our second visit in early May 2016 was more successful. After dry grass was burned in spring, virtually all *Sphagnum* patches became clearly visible. Sadly, we did not see a closed *Sphagnum* cover that was observed by Tarnogradsky 79 years earlier. *Sphagnum* mosses were concentrated west from the lake, mainly along streams. Southeast from the lake, the peatland was drier and no peat mosses were present.

Having investigated our own samples, literature sources, and herbarium materials of the Botanical Institute, RAS (LE), we concluded that 7 *Sphagnum* species were present in 2016 in the Tarskoye Peatland. The list of species is given below. Plant names are given in line with the List of Mosses of East Europe and North Asia (Ignatov, Afonina, Ignatova et al. 2006).

Sphagnum angustifolium (C.E.O Jensen. ex Russow) C.E.O Jensen — Near Tarskaya Station. Tarskoye Peatland, 30.10.1939 leg. Tarnogradsky, det. A.L. Abramova, №13049 (LE)!

Sphagnum capillifolium (Ehrh.) Hedw. — Prigorodny District, Tarskoye Peatland, 10.05.2016, Ukrainskaya, № 16352 (LE) !

Sphagnum centrale C.E.O Jensen — (Tarnogradsky 1947) North Ossetian Autonomous SSR, Near Tarskoye village. Tarskoye Peatland 30.10.1939, leg. Tarnogradsky, det. A.L. Abramova, №12963, №12964 (LE) !; Prigorodny District, Tarskoye Peatland, 8.07.2013, Ukrainskaya, (№№16328-16331; Prigorodny District, Tarskoye Peatland, 10.05.2016, Ukrainskaya, №№16332-16336 (LE) ! The species is protected in Krasnodar Krai (Red List … 2007).

Sphagnum flexuosum Dozy et Molk. (= *S. amblyphyllum* (Russ.) Zick.). — Near Tarskaya station. Tarskoye Peatland, 30.10.1939 leg. Tarnogradsky, det. A.L. Abramova, №13034 (LE) !

Sphagnum magellanicum Brid. — (Tarnogradsky 1947); Prigorodny District, Tarskoye Peatland, 10.05.2016, Ukrainskaya, №№16324-16327 (LE)! The species is protected in Krasnodar Krai (Red List …2007).

Sphagnum palustre L. — Prigorodny District, Tarskoye Peatland, 8.07.2016, Ukrainskaya, №№16337-16338 (LE)! The species is protected in Kabardino-Balkaria (Red List …2000).

Sphagnum subsecundum Nees — (Tarnogradsky 1947) Near Tarskaya station. Tarskoye Peatland, 30.10.1939 leg. Tarnogradsky, det. A.L. Abramova, №№ 13029, 13030 (LE) ! Priogorodny District, Tarskoye Peatland,

8.07.2013, Ukrainskaya, (№№16339-16344; Prigorodny District, Tarskoye Peatland, 10.05.2016, Ukrainskaya, №№16345-16351 (LE) !

In addition to *Sphagnum* mosses, we discovered some green mosses, including *Aulacomnium palustre* (Hedw.) Schwägr.; *Bryum pseudotriquetrum* (Hedw.) P.Gaertn., B.Mey et Scherb., *Drepanocladus aduncus* (Hedw.) Warnst., *Calliergon cordifolium* (Hedw.) Kindb.; *Calliergonella cuspidata* (Hedw.) Loeske; *Dicranella cerviculata* (Hedw.) Schimp.; *Philonotis fontana* (Hedw.) Brid., *Plagiomnium elatum* (Bruch et al.) T.J.Kop., *Plagiothecium ruthei* Limpr.; and *Polytrichum commune* Hedw. Most of these species also occur in Sphagnum mires in the high-mountain Caucasus. I.V. Dylevskaya in her publication on *Sphagnum* mosses in Georgia (Dylevskaya 1976) mentions these species as edificators and sub-edificators of mire coenoses. In future, collection and summarization of data on green mosses accompanying *Sphagnum* species in the Caucasus is likely to be useful in identification of mire communities where *Sphagnum* mosses disappeared in the recent past.

Mosses of the Tarskoye Peatland have the following specifics:

1. The three species (*Sphagnum magellanicum, S. centrale, S. subsecundum*) that dominated in the moss cover in 1939 were also dominant in our samples.
2. The section *Sphagnum* is well represented. We discovered the three species of the section listed for the North Caucasus (which is unique for the Caucasus): *Sphagnum centrale, S. magellanicum, S. palustre*. Another species of the section, *Sphagnum papillosum* Lindb., was recorded in the Caucasus (in Georgia only) by V.S. Dokturowsky (Dokturowsky 1931). One should note that all species of the section are protected in other areas of the North Caucasus and should as well be recommended for protection in North Ossetia-Alania.
3. *Sphagnum angustifolium* and *S. flexuosum* are likely to have been eradicated as a result of regular spring burns of dry grass.

Moreover, the Tarskoye Peatland is a rare paleobotanical natural feature of the North Caucasus. Its Holocene pollen diagram, with 70 pollen types registered, is the richest in Russia. The peatland began to form 5000 to 6000 years ago. The peat layer of up to 6 meters deep has preserved remains of Holocene vegetation that grew there 8000 to 10000 years ago (http://www.rso-a.ru/o-respublike-severnaya-osetiya-alaniya/prirodnye-resursy-rso/242-ozera-vodokhranilishcha-i-bolota). By decree # 31 of the North Ossetia-Alania Government 22/02/2008, the peatland was designated as a natural monument of regional importance (number 169 in the list: http://rso-a.ru/o-respublike-severnaya-osetiya-alaniya/prirodnye-resursy-rso/236-pamyatniki-prirody). This status, however, and protection measures taken are clearly insufficient. The Tarskoye Peatland was listed in the USSR register of protected peatlands (Boch, Mazing 1979), which gives grounds for improving its protection status to PA of federal importance and introduction of corresponding protection measures. Unfortunately, protection of rare plant species in the Tarskoye Peatland is extremely inefficient. Major threats to rare plant species within a relic community in the peatland are as follows:

1. Land amelioration for agricultural purposes that has been carried out in close vicinity of the peatland will soon adversely affect quality of ground waters that feed the mire. A 2-meter deep trench dug in 2016 around a crop field some 300 meters away from the peatland impede ground water supply to it.
2. Growing agricultural crops involves the use of mineral fertilizers that will be washed away by precipitation into deeper soil layers and affect chemical composition of ground waters supplied to the peatland.
3. Regular burning of dry grass on the peatland destroys living plants and seeds. *Sphagnum* mosses have already suffered greatly and could only survive in waterlogged places. Given the reduced ground water supply, the problem of spring burns becomes critical for these plants.

Due to the above factors, population numbers of rare plant species, primarily *Sphagnum* mosses, will go down to complete extinction in foreseeable future unless urgent measures will be taken to save the Tarskoye Peatland.

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Scotland

Welcome to the Peatland Learning Module!

In Scotland, people have been living in close proximity to peatlands for centuries. Peatlands, which are also known as bogs, quags or mires, are an integral part of typical Scottish landscapes that have been transformed over time. Past management practices have shaped how these landscapes look today, and management decisions today will influence what Scottish peatlands will look like in the future. This learning module has been designed to help explain what peatlands are and how they are managed. The module will take you through different key features of peatlands in Scotland, the benefits they provide and introduce the possibility of restoring degraded peatlands. This learning module has been created by researchers from Scotland's Rural College (SRUC), The James Hutton Institute and the University of Leeds to support Scottish Natural Heritage's Peatland Action programme. The work has been funded by the Scottish Government Strategic Research Programme (2016 – 2021) and water@leeds, the interdisciplinary water research centre of the University of Leeds; and is supported by Scottish Natural Heritage. The tool has been developed using available scientific information and expert opinion gathered from a series of scientific workshops. At the end of this learning module, which will take 10-15 minutes to complete, there will be the possibility for you to fill in a feedback form, so that you can provide your views and opinions. The descriptions and drawings shown in this learning module are open access under the Creative Commons License and can be used without charge by anyone. For that, follow the links and instructions provided at the end. http://www.see.leeds.ac.uk/peatland-modules/learning/1.php

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United Kingdom

Commission of Inquiry on Peatlands Lite

The IUCN UK Peatland Programme would like to hear your views on topic areas where evidence is rapidly evolving, unclear or where consensus is needed to foster joint action for peatland conservation. We are planning to produce a Commission of Inquiry on Peatlands Lite during 2017/18, to update the existing report published in 2011. Your input now will help us to decide what topics are most in need of review.
The consultation document can be completed quickly, with a few multiple choice options. However, for those of you with lots of ideas, there is the chance to share these in the comment sections. Please respond by the end of March. For information visit: www.iucn-uk-peatlandprogramme.org

Start Consultation

Heathrow aims to make third runway carbon neutral by peatland restoration

The huge growth in flights from Heathrow's planned new runway could be carbon neutral, according to an ambition revealed by the airport. The 260,000 extra flights a year anticipated from the third runway would make the airport the UK's largest source of carbon emissions. But Heathrow's new sustainability plan suggests other ways to offset the leap in emissions, including by restoring British peat bogs. This would be "a very British solution", according to John Holland-Kaye, the chief executive of Heathrow. "The opportunity is absolutely massive," said the environmentalist Tony Juniper, who was a paid consultant on Heathrow's new plan. "The vast majority of peatlands are degraded and it is releasing billions of tonnes of carbon over decades." Andrew Pendleton of Friends of the Earth said: "If you look at this coldly, it makes Heathrow one of the most progressive airports in the world. But there is a jumbo-jet sized elephant in the room – a new runway that would see 260,000 extra flights a year, and that comes at a significant environmental price." "It is deeply irresponsible of the government to sign off on this expansion on the assumption that something will come along" to solve the challenges, he said. A cross-party committee of MPs recently accused the government of "magical thinking" over the future solutions to Heathrow's environmental challenges.

Furthermore, everybody seems to forget that offsets (also of peatland restoration) are only a zero-sum game. The Paris Agreement implies that we have to reduce emissions by 95% by 2050, meaning that increasing emissions in one sector and offsetting them by reducing emissions in other sectors is no longer a viable option…. https://www.theguardian.com/environment/2017/feb/28/heathrow-aims-make-third-runway-carbon-neutral

Peatland restoration in the Flow Country, Scotland (Photo: Hans Joosten).

Peatland conservation relevant papers January/February 2017

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

1. *Sphagnum* establishment in alkaline fens: Importance of weather and water chemistry: http://www.sciencedirect.com/science/article/pii/S0048969716327978
2. Impacts of restoration of forestry-drained peatlands on nutrient and organic carbon exports and methane dynamics: http://dx.doi.org/10.14214/df.232
3. European Red List of Habitats - Part 2. Terrestrial and freshwater habitats: http://ec.europa.eu/environment/nature/knowledge/pdf/terrestrial_EU_red_list_report.pdf
4. Indirect effects of invasive Burmese pythons on ecosystems in southern Florida: http://onlinelibrary.wiley.com/doi/10.1111/1365-2664.12844/abstract

5. Mixed policies give more options in multifunctional tropical forest landscapes: http://onlinelibrary.wiley.com/doi/10.1111/1365-2664.12666/abstract
6. Mapping Grey Willow (*Salix cinerea*) stand architecture using airborne laser scanning: implications for large-scale tree weed control: http://onlinelibrary.wiley.com/doi/10.1111/emr.12241/abstract?campaign=woletoc
7. Long-term enhanced winter soil frost alters growing season CO_2 fluxes through its impact on vegetation development in a boreal peatland: http://onlinelibrary.wiley.com/doi/10.1111/gcb.13621/abstract?campaign=wolacceptedarticle
8. Greenhouse gas emissions from intensively managed peat soils in an arable production system: http://www.sciencedirect.com/science/article/pii/S0167880916305692
9. Spatio-temporal variation in high-centre polygons and ice-wedge melt ponds, Tuktoyaktuk Coastlands, Northwest Territories: http://onlinelibrary.wiley.com/doi/10.1002/ppp.1880/abstract
10. Numerical modelling of ice-wedge polygon geomorphic transition: http://onlinelibrary.wiley.com/doi/10.1002/ppp.1909/abstract
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12. Radiative forcing of carbon dioxide, methane, and nitrous oxide: A significant revision of the methane radiative forcing: http://onlinelibrary.wiley.com/doi/10.1002/2016GL071930/abstract
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16. Variations in diatom communities at genus and species levels in peatlands (central China) linked to microhabitats and environmental factors: http://www.sciencedirect.com/science/article/pii/S004896971631186X
17. Correlations between substrate availability, dissolved CH4, and CH4 emissions in an arctic wetland subject to warming and plant removal: http://onlinelibrary.wiley.com/doi/10.1002/2016JG003511/abstract
18. A six thousand year record of climate and land-use change from Mediterranean seagrass mats: http://onlinelibrary.wiley.com/doi/10.1111/1365-2745.12741/abstract
19. Large CO_2 and CH_4 emissions from polygonal tundra during spring thaw in northern Alaska: http://onlinelibrary.wiley.com/doi/10.1002/2016GL071220/abstract
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62. A smart market for nutrient credit trading to incentivize wetland construction: http://www.sciencedirect.com/science/article/pii/S0022169417300045
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69. Conservation in the face of ambivalent public perceptions – The case of peatlands as 'the good, the bad and the ugly': http://www.sciencedirect.com/science/article/pii/S0006320716310904
70. Geographic variation in apparent competition between native and invasive *Phragmites australis*: http://onlinelibrary.wiley.com/doi/10.1002/ecy.1646/abstract?campaign=woletoc
71. Direct and indirect climate change effects on carbon dioxide fluxes in a thawing boreal forest-wetland landscape: http://onlinelibrary.wiley.com/doi/10.1111/gcb.13638/abstract
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79. Differences in DOM of rewetted and natural peatlands – Results from high-field FT-ICR-MS and bulk optical parameters: http://www.sciencedirect.com/science/article/pii/S0048969717302954
80. Restoration of nutrient-rich forestry-drained peatlands poses a risk for high exports of dissolved organic carbon, nitrogen, and phosphorus http://www.sciencedirect.com/science/article/pii/S0048969717303066
81. Pore water velocity and ionic strength effects on DOC release from peat-sand mixtures: Results from laboratory and field experiments http://www.sciencedirect.com/science/article/pii/S0016706117302859
82. Biodiversity offsetting: Clearing up misunderstandings between conservation and economics to take further action: http://www.sciencedirect.com/science/article/pii/S0006320716309351
83. Holocene peatland and ice-core data constraints on the timing and magnitude of CO2 emissions from past land use: http://www.pnas.org/content/114/7/1492.short?rss=1
84. Modelling past, present and future peatland carbon accumulation across the pan-Arctic: http://www.biogeosciences-discuss.net/bg-2017-34/
85. Singapore's willingness to pay for mitigation of transboundary forest-fire haze from Indonesia: http://iopscience.iop.org/article/10.1088/1748-9326/aa5cf6
86. Rich fen development in CE Europe, resilience to climate change and human impact over the last ca. 3500 years: http://www.sciencedirect.com/science/article/pii/S003101821630668X

Registration form for the

IMCG Excursion to Mires of North-Eastern Europe: Inta, Syktyvkar, Naryan-Mar

Information from passport (Information needed until 14. March 2017)	
Given name	
Surname (family name)	
Passport number	
Date when issued	
Place where issued	
Expiration date	
Date of birth	
Place of birth	
Place of residence	
Citizenship	
Other information (Information needed until 14. March 2017)	
Place of work	
Position	
Working address	
Country of birth	
Residence country	
Russian consulate where you want to receive your visa (cannot be changed afterwards)	country, city
Logistic information / Arrival to Russia and Inta	
Date of arrival to Russia	
Airport or train station	
Flight or train number and arrival time	
Participation in Inta	Yes or no
Participation in Syktyvkar	Yes or no
Participation in Naryan-Mar	Yes or no
Special diet requirements	Name your requirements
Accommodation Syktyvkar, 27 – 30 July	
4 * hotel, 5200 Rubel per night	
Hostel app. 2000 (single)	
Hostel 1500 Rubel (double)	
Hostel shared with four other people	
Apartment for 2 – 3 people app. 1500 Rubel	
Accommodation Naryan-Mar from 30 July – 4 August	
3 * hotel appr. 5000 Rubel	
2 * hotel appr. 2500 Rubel (about 5 km outside of the town centre, but transport will be provided)	
dormitory with shared shower and toilet, 4 people in the room, appr. 500 Rubel, also outside	
Departure from Naryan-mar and Russia	
Date of departure from Naryan-Mar	
Flight and expected departure time	
Date of departure from Russia	
Flight and expected departure time	

Attachment: A scan of all pages (no joke, also empty and with other visas) of the passport

Please send form to: tania.minajewa@gmail.com and goncharova_n@ib.komisc.ru