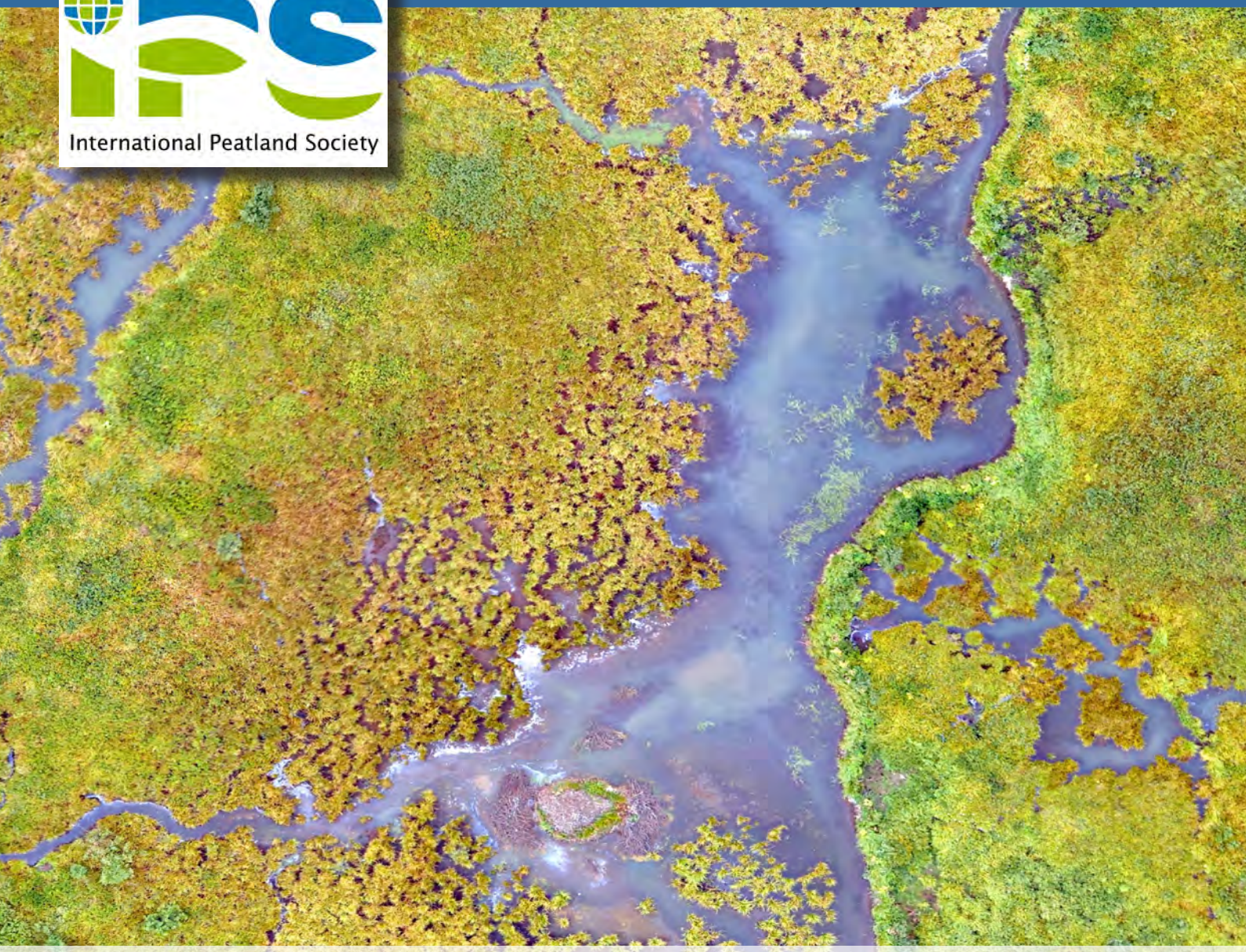
6 April 2020

# Peatlands

## International

issue 1.2020

International Peatland Society





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1913

*we make it grow*

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# Editorial

## Together we are one.

Photo: Kate Trifo

In a matter of only a couple of weeks, our world as we know it has literally stopped. The Covid-19 pandemic is spreading across the globe with unprecedented speed and determinism. Measures taken by governments are massive and already having a huge effect on regional, national and global economies.

While some sectors will face fewer problems than others, it is fair to say that we all, from individuals to companies, from cities to governments, are and will be affected one way or another. The crisis is also unprecedented in the sense that we are all in the same boat. We are in this together, and we will also prevail together.

How does the crisis relate to peat and peatlands? Many governments are in a state of emergency and exceptional enabling acts are being implemented, in order to slow down the pandemic and protect public health. As a consequence, operational reliability, security of supply of raw materials, and ultimately national self-sufficiency in, e.g., energy and food production, are being severely tested. For the first time since the oil crisis, the energy sector in many countries is in a real position to secure energy supplies in exceptional circumstances.

Furthermore, as borders worldwide are being closed for unknown periods of time, concerns surrounding supply chains supporting food production, including growing media, are increasing in many parts of the world. In their respective press releases, Growing Media Europe and the Canadian Sphagnum Peat Moss Association underline the indispensability of growing media in the large-scale production of vegetables, fruits, herbs and edible mushrooms. Consequently, they urge political decision-makers

**Impressum**

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Are you interested? Contact susann.warnecke@peatlands.org.

Cover: Rocky Mountains fen by USGS.

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to maintain trade and movement of products that are essential to food production.

Simultaneously, UN Environment Executive Director, Inger Andersen, and leading scientists say that nature is sending a clear warning signal with the pandemic. Today's civilization is "playing with fire", with too many pressures placed on the natural world with potentially hazardous consequences. While the immediate priority is to protect people from the coronavirus and prevent its spread, Andersen added that the long-term response must tackle and fight both global warming and habitat and biodiversity loss. Interestingly, the current crisis has reduced more $CO_2$ emissions within weeks than all climate conversations combined have done in years.

In the long run, this pandemic may therefore further polarize the conflict between the use of peat as a raw material (security of supply for food and energy), and the restoration and conservation of peatlands (climate change mitigation). Solutions will be needed more so than before, and we all will need to do our part for a safer and more sustainable future. We are in this together.

*Gilbert Ludwig*

Secretary General
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Commission Chairs, Expert Group Coordinators and Executive Board members at the third IPS Expert meeting in Prague 3-5 March, shortly before Corona stroke in Europe. Photo: Susann Warnecke

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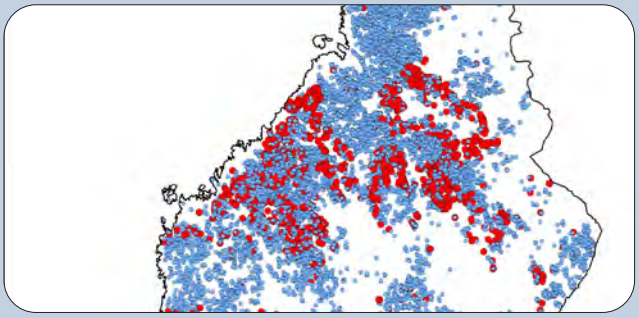


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# 16th International Peatland Congress postponed to 2021

We are very sorry to inform you that the International Peatland Congress in Tallinn has been postponed to 2021 due to the general concerns surrounding the COVID-19 virus and the official suggestion of the Estonian Health Board dated from 10 March 2020 to defer all international events. As your comfort and safety is our top

priority, it has been decided that this is the best course of action to give as many people as possible the chance to attend the congress without exposing them to health risks.

All registrations that have been made so far will automatically be transferred into next year. However, if you would still like to cancel your registration, and receive a reimbursement, please e-mail the congress secretariat: ipc2020@publicon.ee not later than 30 April 2020. In this case, a 35 EUR handling fee will be subtracted from the paid sum as per the cancellation terms.

All hotel bookings made through the Congress accommodation system have been cancelled free of charge by the congress secretariat. Bookings made directly should be withdrawn by the attendee according to booking terms. Do not hesitate to contact the congress secretariat for assistance in case of problems. The specifics about the submitted abstracts and all other technical questions will be addressed within 2 - 3 weeks. We will keep you up to date via the event's homepage, Facebook page, LinkedIn and e-mail as well.

We will try to make the best out of this unfortunate situation and are giving our best to make the transition as easy as possible. We appreciate your cooperation and understanding immensely!

Stay healthy and see you at IPC 2021!

*The Congress Organising Committee*

# Candidates to the IPS Executive Board

The IPS will hold elections to its Executive Board (EB) during a virtual Annual Assembly in June (details to be announced in late April). There will be elections for **8 vacant** positions: for the President, First and Second Vice President as well as five Ordinary Members. Nominations were sent by National Committees by 14 February 2020 to the IPS Secretariat. The following positions will be filled:

**President:**
Term ends: Gerald Schmilewski, Germany
Candidate: **Marko Pomerants**, Estonia

**First Vice President:**
Term ends: Guus van Berckel, Netherlands
Candidates: **Ingrida Krigere**, Latvia
**Guus van Berckel**, Netherlands

**Second Vice President:**
Term ends: Samu Valpola, Finland
Candidate: **Jack Rieley**, United Kingdom (otherwise would continue as ordinary member)

**Ordinary Members:**
Term ends: Donal Clarke, Paul Short, Erki Niitlaan, Zhengping Wang

Candidates (5 to be elected, one 2020-2022, if Rieley elected VP2; otherwise 4):
**Donal Clarke**, Ireland
**Ingrida Krigere**, Latvia (if not VP1)
**Erki Niitlaan**, Estonia
**Dedi Nursyamsi**, Indonesia
**Paul Short**, Canada
**Tuija Vähäkuopus**, Finland
**Guus van Berckel**, Netherlands (if not VP1)
**Meng Wang**, China (if fees paid)

On the Board remain until 2022 Sabine Jordan, Sweden; Lulie Melling, Malaysia; (Jack Rieley, up for election as VP2), United Kingdom; and Frank Tamminga, Germany.


Photo: Markus Spiske

**Rules for the Election of Executive Board Members (physical assembly)**

"The voting for Executive Board members shall by carried out by secret ballot. The elections shall take place in the following sequence:

1. election of the President;
2. election of the First Vice President;
3. election of the Second Vice President;
4. election of ordinary members.

In the election of ordinary members, each national representative writes the names of as many candidates as there are free places on the Executive Board on his/her ballot.

The votes are counted independent of the order in which they are written and those candidates with the highest total number of votes will be new ordinary Executive Board members.

In the case of equal votes, another secret ballot is carried out between the remaining candidates. If the second voting remains equal, lots shall be drawn. Voting shall be carried out using ballot papers containing the IPS logo."

# Allan Robertson Grants 2020

The Allan Robertson Grants 2020 were originally dedicated to **participants in the 2020 International Peatland Congress** in Tallinn.

As the Congress is postponed to summer 2021, the Executive Board decided to make the funds available also for other purposes, and will ask the winners to report back for Peatlands International on how the amounts have been used.

The successful applicants were this year:

- **Dael Sassoon**, University of Manchester, United Kingdom: Ecosystem dynamics of Amazonian open peatlands during the Late Holocene,
- **Clare Profous**, NUI Galway (Human Rights Law), Ireland: Ireland's Just Transition Plan - The Midlands
- **Thomas Newman**, University of Leicester, United Kingdom: Carbon loss from agricultural fen peatlands in the UK
- **Sanna Piilo**, University of Helsinki, Finland: Attending the conference and presenting my research in Tallinn
- **Monika Ruwaimana**, University of Oregon, USA: Tropical peat research in Indonesia
- **Made Dirgantara**, University of Palangka Raya, Indonesia: Sustainability of Tropical Peatlands: Fires Mitigation
- **Farina de Waard**, University of Greifswald, Germany: Global distribution and patterns of fire on peatlands
- **Mareille Wittnebel**, Thünen Institute of Climate-Smart Agriculture, Germany: Soil organic carbon stocks of managed peat soils in Germany
- **Benjamin Freeman**, Bangor University, United Kingdom: PhD student research on responsible peatland management
- **Hannes Keck**, Swedish University of Agricultural Sciences, Sweden: Investigating controlling variables of greenhouse gas fluxes from agricultural peatlands

Warm congratulations to the winners and thanks to all 28 applicants!

The Allan Robertson Grants have been awarded since 2015 to a) young peatland and peat researchers carrying out research or practical work or b) young professionals in early stages of their career in managing peatlands or peat industry.

Grant recipients are normally under the age of 30. Undergraduates are ineligible. Grants usually amount to €500 each. Applications can be submitted from early December until **31 January** via the IPS website.

The IPS launched the Grants for Research Students and Young Professionals in Peatland Management in memory of Allan Robertson, First Honorary President of the IPS. Payment will be made by bank transfer.

More information and the names of the previous winners are available at the IPS website, www.peatlands.org/about-us/honoursgrants.

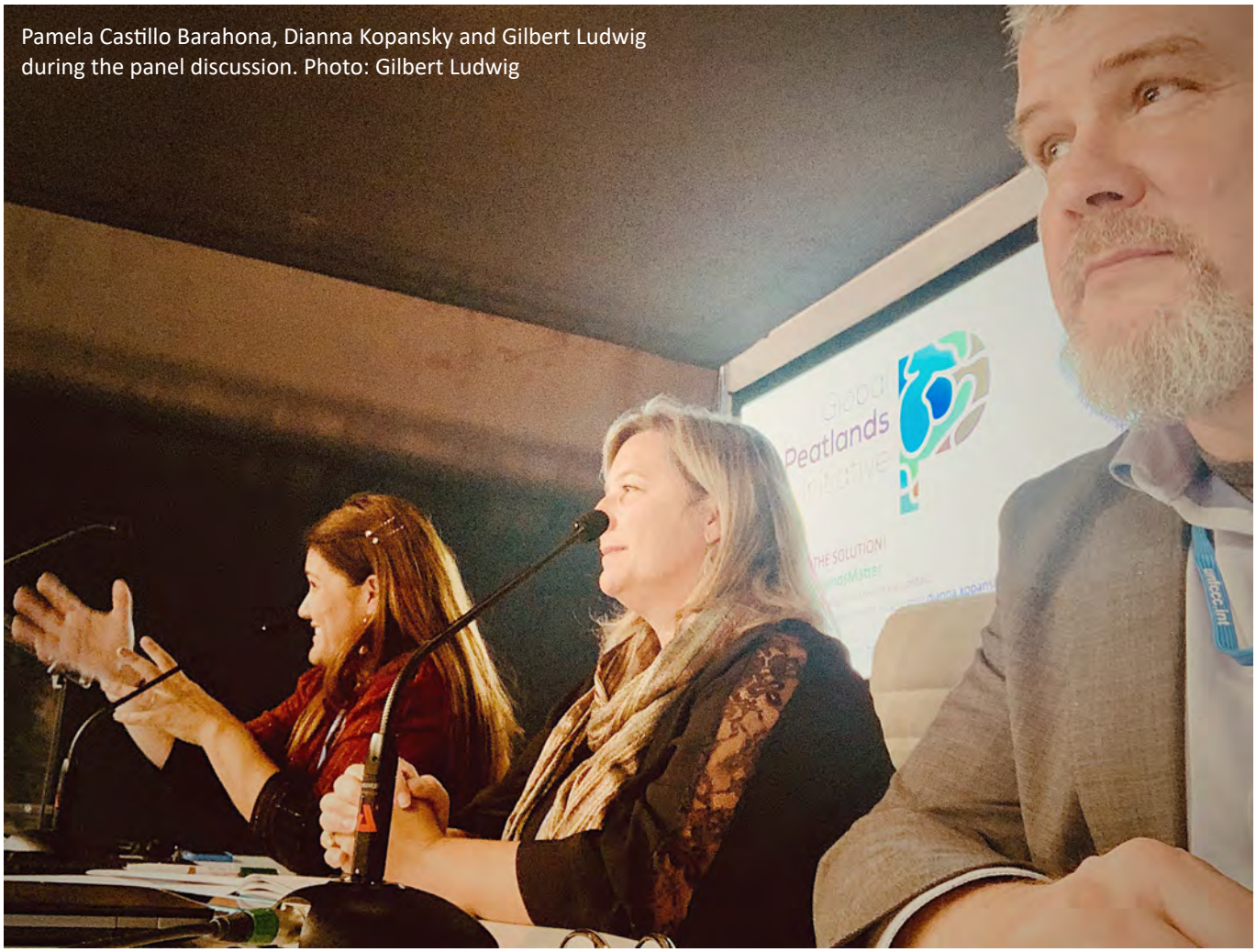
Photo: Logan Isbell

# UNFCCC COP25 Chile - Madrid 2019

The UNFCCC Climate Summit COP25 2019 Chile was held in Madrid on 2-15 December 2019. IPS participated as a UNFCCC observer, and organized, in collaboration with the Global Peatlands Initiative (GPI) and the National Resource Defence Centre (NRDC), a side event on "Peatlands as Nature-based Solution (NBS); accelerating action and impact through MEA collaboration and synergy".

The objectives of the session were to:

- Present the GPI partnership, share the major achievements and identify further opportunities for collaboration;
- Emphasize the importance of international action for the protection and sustainable management of peatlands as key ecosystems and promote peatlands as a nature-based solution;
- Highlight opportunities to ensure international commitments to protect 30% of terrestrial ecosystems by 2030 and support global efforts to secure a safe climate;
- Highlight areas/countries that are leading the way in aligning conservation and climate goals (Canadian boreal forest/Cree First Nation and Costa Rica);




Pamela Castillo Barahona, Dianna Kopansky and Gilbert Ludwig during the panel discussion. Photo: Gilbert Ludwig

Feria de Madrid became the COP25 venue after a quick move from Chile due to political unrest. Photo: Gilbert Ludwig

- Promote collection of good practices and reinforce mutual learning by sharing successful stories, including the work on policymaking and interdisciplinary research.

The panel comprised Dianna Kopansky (GPI), Gilbert Ludwig (IPS), Tobias Salathé (Ramsar), Anthony Swift (NRDC) and Pamela Castillo Barahona, Vice Minister for the Environment, Ministry of Environment and Energy, Costa Rica. Mandy Gull, Deputy Grand Chief of the Cree Nation, unfortunately had to cancel because of a family-related force majeure. Dianna Kopansky acted as moderator and started with a short introduction on NBS and 30x30.

Gilbert Ludwig continued with a presentation, briefly introducing the GPI partnership and the role of peatlands in climate change mitigation and adaptation. He then gave an overview on peatlands' ability to store carbon long term and their potential significance as NBS. Critically, Mr. Ludwig highlighted the importance, in relation to peatlands as NBS, of mitigating conflicts between stakeholders with differing interests.

Tobias Salathé from Ramsar continued with a presentation on recent developments in building synergies between stakeholders to protect, restore and/or sustainably manage peatlands (UNEA resolution, Multilateral Environmental Agreements) and the need to strengthen the prominence of NBS in Nationally Determined Contributions (NDCs).

Following on from this, attendees at the Summit turned their attention to areas and countries that are leading the way in aligning conservation and climate goals. Anthony Swift from NRDC, who spoke on behalf of the Deputy Grand Chief, Mandy Gull, discussed the importance of the boreal forest and peatlands in Canada to support a safe climate, highlight the threats posed by industrial logging to Canada's boreal forest and discuss ways by which indigenous peoples are leading the way in combatting those threats and aligning the implementation of 30x30 with climate.

In the next presentation, Pamela Castillo Barahona discussed Costa Rica's endeavour to protect at least 30% of the country by the implementation

of NBS. This was the least peatland-related part, but gave an excellent example of how NBS can be successfully implemented. Costa Rica's dedication to its environment and environmental policy development has been noted at the highest UN level, and Costa Rica has received the 2019 Champions of the Earth award, the UN's highest environmental honour, for its role in the protection of nature and its commitment to ambitious policies to combat climate change.

The session was followed by a panel discussion moderated by Dianna Kopansky. Ms. Kopansky asked the panellists (in the following order: Gilbert Ludwig, Tobias Salathé, Anthony Swift, Pamela Barahona) one or several questions, giving about six to eight minutes for each panellist to answer. The key question given to Gilbert Ludwig was "How do you see the role of the IPS in promoting NBS' and encouraging MEAs?"

Mr. Ludwig highlighted the extensive range of IPS' expertise in all fields of peat and peatlands, from environmental and societal, to economic issues, enabling IPS to offer scientific and knowledge-based know-how key to the restoration, conservation and, importantly, responsible management of peatlands: "The role of responsible peatland management is crucial. Peatland issues are also sources of conflicts between stakeholders with different or opposite interests. We cannot ignore or deny these conflicts, just as we cannot ignore or deny the threats of climate change. In order to find successful solutions, it is of key importance to keep open the dialogue between all stakeholders, including industry, to keep them both informed and involved, in order to mitigate conflicts."
The session continued with questions from the audience and an open discussion.

The role of peatlands in climate change mitigation and adaptation received considerable attention through a number of other side events. A total of 10 peatland-related side events were organized by a range of different peatland actors:

- 2 December: Avoiding loss of high carbon soils through peatland mapping, monitoring and adequate management (JICA, GMC, GEC, FAO, UNEP);
- 4 December: Gearing towards NDC ambition with C-rich peatlands in agenda (Indonesia);
- 4 December: Lessons learned on peatland management practices from company concessions, communities and government (Indonesia);
- 5 December: UN Global Peatlands Initiative: Milestones, impact and the path forward (UNEP, BMU);
- 5 December: From the Boreal to the Arctic: Indigenous knowledge and leadership for

Side event announcement.

climate mitigation and adaptation (ICC, DSF);
- 5 December: Working together to help protect 30% of the world's land and highlighting peatlands as a priority ecosystem for climate action, biodiversity and resilience (UNEP, IPS, NRDC)
- 6 December: Getting climate results by bringing science to peatland policy through South-South and Triangular Cooperation (ITPC, UNEP);
- 7 December: Scottish and Chilean peatland restoration (Scotland, Chile);
- 9 December: Averting the climate and biodiversity crisis: natural solutions pivotal in delivering NDC ambitions (WI, BL, Ramsar, UNEP);
- 10 December: Realities of cryosphere changes and risks for people and climate (WI, Russia).

According to UN Secretary General Antonio Guterres, the final outcome of the Summit was disappointing, stating that "…the international community lost an important opportunity to show increased ambition on mitigation, adaptation and finance to tackle the climate crisis." This disappointment was mostly brought about by the lack of ambition and commitment from three major, powerful countries.

This must not, however, be interpreted as a temporal relief from the challenges many industrial sectors, including the peat industry, are facing. On the contrary, from the grass-roots level to the international convention level, awareness about the role of peatlands in adapting to and mitigating climate change, is increasing and becoming more widespread.

An ever-increasing number of international organizations, conventions and multilateral environmental agreements are forming synergies and are singing from the same hymn sheet. In addition, consumer awareness is on the rise. The environmental agenda has a strong momentum, and their argumentations are increasingly convincing both consumers and decision-makers.

The peat and growing media industry must take current developments seriously and also live up to its responsibility in respect to the environmental dimension of sustainable development.

*Gilbert Ludwig*

IPS Secretary General
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# Training peatland scientists in the Congo Basin

As part of CongoPeat, a five-year scientific study led by Prof Simon Lewis on the peatlands of the Central Congo Basin, academic partners in the two Congos have highlighted an acute need for better access to textbooks on both tropical and non-tropical peatlands in French or English, to enable training of researchers and students in the region.

Would you be interested in making a textbook donation? All materials will be taken out by the CongoPeat team and made accessible at Marien Ngouabi University in the Republic of the Congo and the University of Kisangani in the Democratic Republic of the Congo.

Publications will be presented to the local authorities for placing in the university libraries.

Donations of texts, ideally two copies, would be gratefully received. Please email Helen Plante (admin@congopeat.net) to arrange submission of a donation.

*Helen Plante*

CongoPeat
Leeds, United Kingdom
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# Peat Moss and Growing Media are Essential Goods

As the entire world is battling against the propagation of the coronavirus (COVID-19), and as borders are being closed, the Canadian Sphagnum Peat Moss Association (CSPMA) addresses concerns regarding this outbreak to growers and governments across North America.

It is the industry's position, backed by most provincial and state declarations, that Canadian Sphagnum Peat production is an essential part of the supply chain supporting food production, particularly in commercial greenhouses and mushroom operations, both in Canada and the US. Additionally, peat and peat products provide essential support for citizen activity to address food insecurity concerns, including peat moss usage for home gardening. The need to maintain food supplies during this national and international response to the Covid-19 Pandemic is critical.

Photo: Phuc Long

Food production and supply chain is recognized as an essential service, and growing media production is rightly so included in it. Our products are at the very beginning of the food security chain for both commercial and retail markets. Even though we are experiencing unprecedented social and economic challenges, our members are doing their utmost to enable people to be fed with produce of high-quality including vegetables, fruits, herbs and mushrooms.

**About the CSPMA**

The CSPMA is the National association of peat moss producers and related enterprises devoted to promoting responsible management of Canadian peatlands and sustainability of the industry. We provide support and advocacy for our members and leadership in environmental and social stewardship, as well as economic well-being related to Canadian peatland resources use.

**About our Members**

During this pandemic, all members are addressing their people resources and ensuring that all hygiene and "social distancing", health and wellness protocols are being followed.

Paul Short

Canadian Sphagnum Peat Moss Association
paul.short@peatmoss.com

# CSPMA met in Toronto, Canada

## Canadian Sphagnum Peat Moss Association: 31st Annual General Meeting and Members' Programme

The meeting was held on 5-7 November 2019 at the Intercontinental Toronto Centre and attended by around 60 participants from CSPMA, peat industry, IPS, commerce and academia. The meeting consisted of:

- CSPMA Board of Directors
- Annual General Meeting
- Science Coordinating Committee
- Université Laval Advisory Committee
- Members General Sessions
- Various reports and updates

The members programme consisted of the following presentations:

- Economic overview and forecast: Dr Maurice Doyon, Université Laval
- Growing Media Europe: Sustainability Agenda: Cecilia Leutgebrune, Secretary General, GME
- International peatlands and peat industry challenges: current state and 2050 outlook: Professor Jack Rieley, University of Nottingham, UK and International Peatland Society
- State of research in growing media in North America: Mr Brian Jackson, Department of Horticultural Science, North Carolina State University
- Management and ecological restoration of peatlands for a sustainable Canadian horticultural peat industry: Dr Line Rochefort,

Audience deep in thought at the CSPMA seminar. Photo: Stéphanie Boudreau

Université Laval
- Greenhouse gas emission factors during peat production/use and end/use: Dr Nigel Roulet and Dr Ian Strachan, McGill University
- Valorēs - Programme update: Dr Marion Tétégan Simon, Scientific Director Valorēs
- Industry science and social responsibility update: Ms Stéphanie Boudreau, Industry Science Coordinator and APTHQ Director

Jack Rieley explaining how international conventions influence peatland policies. Photo: Stéphanie Boudreau

# Comment

This was a very important and interesting meeting that combined peat industry with peatland and peat science. There was not only recognition of the importance of peat to growing media and food security but the relationship of peat and greenhouse emissions from peatland and peat to climate change processes.

The synergy of industry and science was very reassuring and stimulating and together they are working towards a more responsible future for Canadian peatlands and peat with minimal environmental impact.

Good luck to them!

Jack Rieley

IPS Executive Board member
jack.rieley@btinternet.com

# Mires and Peat: Volume 26

www.mires-and-peat.net

- Paludiculture on former bog grassland: Profitability of Sphagnum farming in North West Germany by S. Wichmann, M. Krebs, S. Kumar, G. Gaudig
- Hydraulic modelling for assessment of the performance of sedimentation basins downstream from extracted peatlands by S. Hafdhi, S. Duchesne, A. St-Hilaire
- A high-resolution transient 3-dimensional hydrological model of an extensive undisturbed bog complex in West Siberia by W. Bleuten, E. Zarov, O. Schmitz
- Trace elements content of surface peat deposits in the Solovetsky Islands (White Sea) by K. Koziol, J. Korzeniowska, D. Okupny, E. Bezak-Mazur, S. Zurek
- Spatial heterogeneity of soil properties in relation to microtopography in a non-tidal rewetted coastal mire by S. Ahmad, H. Liu, F. Beyer, B. Kløve, B. Lennartz
- Fine-resolution mapping of microforms of a boreal bog using aerial images and waveform-recording LiDAR by I. Korpela, R. Haapanen, A. Korrensalo, E.-S. Tuittila, T. Vesala
- Estimation of greenhouse gas emission reductions based on vegetation changes after rewetting in Drentsche Aa brook valley by W. Liu, A.P. Grootjans, H. Everts, C. Fritz, N. de Vries
- Natural isotopes support groundwater origin as a driver of mire type and biodiversity in Slitere National Park, Latvia by S. Elshehawi, A. Espinoza Vilches, O. Aleksans, M. Pakalne, L. Wolejko, P. Schot, A.P. Grootjans

# WHEN GOOD BECOMES GREAT.

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# Peatlands: Unusual After-uses

## *Seminar and study tour of the Irish National Committee*

We are accustomed to visiting cutaway peatlands and learning about blocked drains, sphagnum re-growth and carbon balance, but this time the Irish National Committee (INC) was introduced to fish, herbs and birch water. The occasion was our seminar and study tour on 15 and 16 October 2019 which took in industrial cutaway peatland and bogs cutover for domestic fuel.

Mount Lucas bog, 1200 hectares in extent, was formerly an industrial peat production area owned by Bord na Móna. It is now being used for a variety of commercial projects and experiments.

A windfarm of 28 turbines produces 80 MW of electricity. The facility, which includes a visitor centre with conference facilities, attracts 30 - 35,000 visitors per year. There has been assisted rehabilitation of some bog areas around the turbines.

Natural colonisation is being facilitated on some parts of the bog. An area of birch woodland is being used for birch sap harvesting to produce birch water.

An area of the bog is being used to experiment with the growing of herbs. The intention is to develop large-scale production of medicinal herbs for the pharmaceutical and healthcare industries. Trialling is taking place on different soils – including shallow peat, deep peat and gravel.

Another experiment in train is an aquaculture facility currently using 5.4 hectares of cutaway bog with a capacity for 35 tonnes of perch and trout. The water from the fishponds is cleaned through an area of duckweed and re-cycled.

Mount Lucas bog also contains 30 hectares of experimental forestry planted under a programme known as Bogfor, a research programme on the

View of Mount Lucas windfarm.
All photos: Catherine O'Connell

Herb trials on peatland and participants.


On Cloncrow Bog.


Herb trials on peatland.

afforestation of industrial cutaway peatlands.

A final visit was to Cloncrow Bog in the County of Westmeath which is designated as a Natural Heritage Area (NHA). It includes some 130 hectares of remaining high bog. One of the issues covered was the interest of local residents in having amenities such as a boardwalk on the bog.

The second part of the INC's annual outing consisted of a seminar. The first presentation was from Stuart Conaty of Bord na Móna (BnM). During 2018 and 2019 BnM, Ireland's largest peat-producing company, announced a major series of bog closures and redundancies.

The company is seeking to manage a major transition from peat production to new businesses including those featured in the previous day's study tour. In the meantime, the jobs of a large numbers of employees are at risk. The transition involves dealing with the socio-economic and cultural impact of the changes on the Irish midlands, and seeking to re-deploy as many employees as possible to other tasks such as peatland rehabilitation, including re-wetting "the vast majority" of the closed bogs.

Mr Conaty described an objective of the transition as a "re-purposing of our assets". New uses will include solar energy projects, natural woodland formation, re-wilding for biodiversity, development of tourism including the possibility of developing railway lines into walking and cycling tracks.

Other presentations included one by Niall Ó Brolcháin on the CARE peat project involving carbon reduction on peatlands in Ireland, France, the Netherlands, Belgium, England and Germany.

A final talk, by Donall Mac an Bheatha, was on the creation of a Mid-Shannon Wilderness Park on peatland.

Donal Clarke

IPS Executive Board member
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Trout from acquaculture on peatland.

# UK Tropical Peatland Working Group Meeting

On 30th January 2020, Professor Sue Page and Dr Sara Thornton hosted a meeting of the UK Tropical Peatland Working Group (UK TPWG). An assortment of researchers gathered for one day at the University of Leicester, to present their work and discuss how the group can be more effective in the realm of tropical peatland science and responsible management.

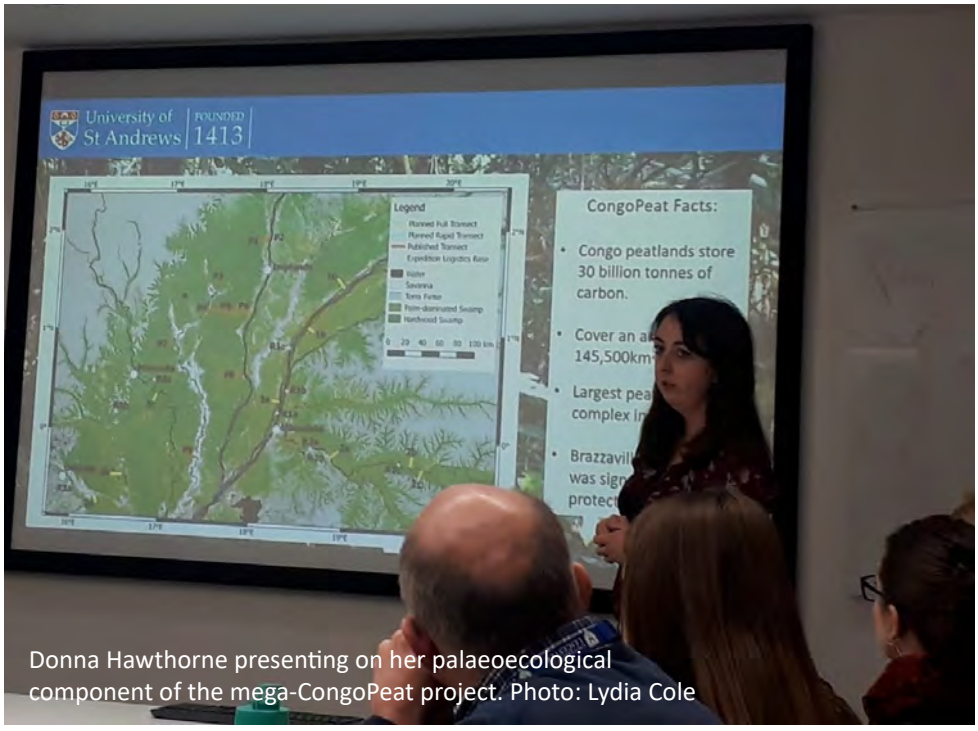
Attendees successfully navigated the UK rail network from as far as Exeter on the south coast to St Andrews on the east coast of Scotland. The most junior member of the group had a baptism of fire as the meeting marked the first day of his PhD – well done, Abdul!

The day started with brief introductions from everyone present, with expertise ranging from palaeoecology to political economy, with a number of biogeochemists and modellers in the mix.

Fifteen people gave a summary of their current work in a short presentation. The Congo Basin team started the proceedings with a lowdown on the state of knowledge on contemporary greenhouse gas emissions (GHG) from these Central African peatlands (Nick Girkin), on their development history (Donna Hawthorne) and past and present spatial patterning (George Biddulph).

The distribution of carbon across Mexico's wetlands was then showcased (Sofie Sjogersten), followed by insights into the emissions resulting from agriculturally important (and very deep!) peatlands in Uganda (Jenny Farmer).

Several presenters gave reports on the exciting new projects they are just embarking on, e.g. TroPeaCC (Angela Gallego-Sala), or the first findings gathered after recently returning from field campaigns, e.g. the Peru peatlands crew



Donna Hawthorne presenting on her palaeoecological component of the mega-CongoPeat project. Photo: Lydia Cole

(Anna Macphie, Adam Hastie, Charlotte Wheeler and Lydia Cole).

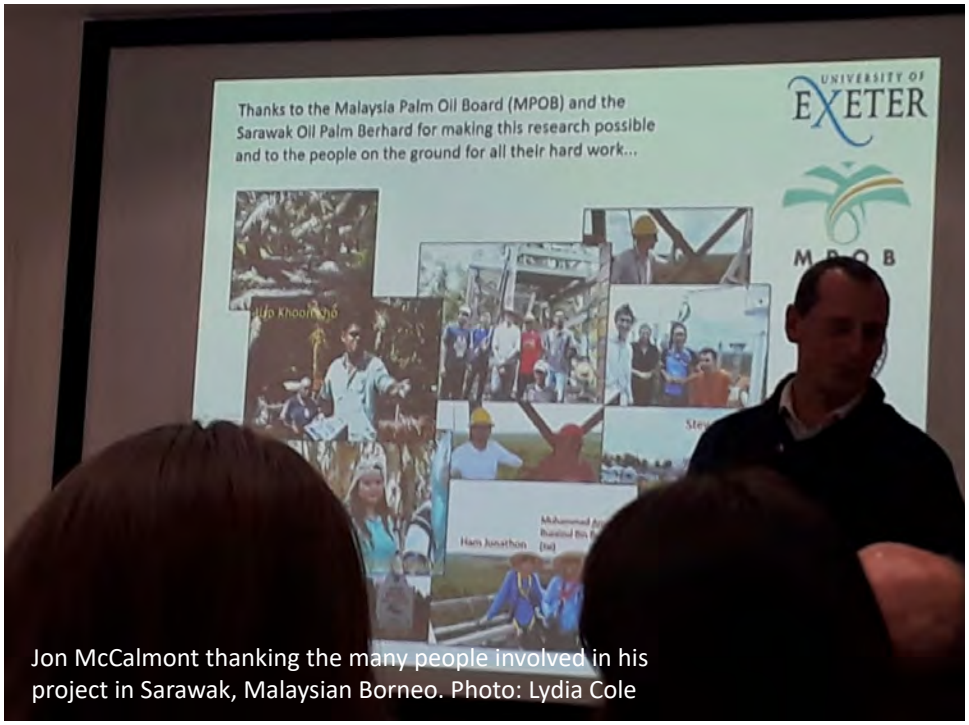
Katy Roucoux gave a neat overview of the multiple different projects happening in the peatlands of the Pastaza-Marañón Foreland Basin in the Peruvian Amazon, showing a diversity of studies ranging from the modelling of carbon to the mapping of livelihoods, and a variety of palaeo- and neo-ecological studies.

The pantropical circle continued on to Southeast Asia's peatlands, where we learnt about the importance of peatland fish for rural livelihoods, biodiversity conservation and much more (Sara Thornton); about exciting, and horrifying new measurements of the GHG emissions during the initial years of oil palm plantation establishment on Sarawakian peatlands (Jon McCalmont) and the pattern of biomass accumulation of these palms on organic-rich soils (Kennedy Lewis); finishing with a round-up of potential ways of reducing GHG emissions from peatland agriculture (Yit Arn Teh), such as wise use of fertilisers.

An engaged discussion followed each set of talks, resulting in as many unanswered questions as those we felt able to provide reasoned responses to. Thus the UK TPWG, along with an extensive body of invaluable collaborators across the Tropics, is tasked with finding answers to these important knowledge gaps we identified (and the funding to match!).

Sara Thornton told of the importance of fishing for rural communities living in peatland areas in Central Kalimantan, Indonesia. Photo: Sara Thornton

Which wetland ecosystems of the Peruvian Amazon are peat-forming and why? Where is the labile carbon from the peatlands of the Congo Basin disappearing to? How can we reduce the impact of cultivating Uganda's peatlands?




Jon McCalmont thanking the many people involved in his project in Sarawak, Malaysian Borneo. Photo: Lydia Cole

And crucially, how do we work across disciplines, perhaps even interdisciplinarily, to tackle the complex challenge of tropical peatland conservation and restoration? If you have answers, questions or are interested in engaging with the group, please get in touch - uktropicalpeat @gmail.com.

Lydia Cole

Postdoctoral Research Fellow
lydcole@googlemail.com

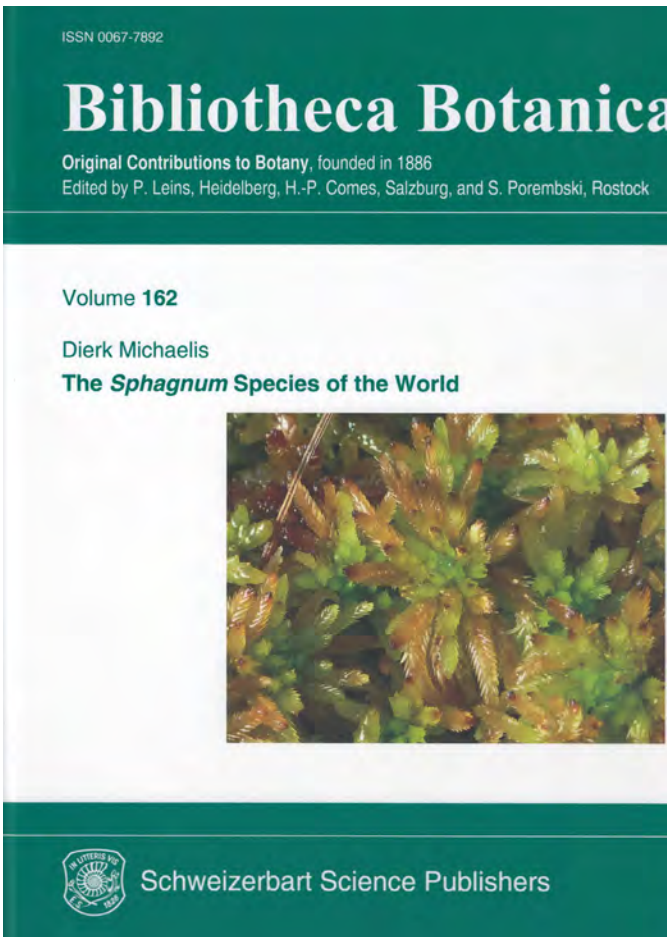
New book!

# The Sphagnum Species of the World

Schweizerbart Science Publishers are pleased to announce the immediate availability of:

Dierk Michaelis:
The Sphagnum Species of the World
(Bibliotheca Botanica, Heft 162)
2019. 435 pages, 15 figures, 219 plates, 23x31cm
ISBN 978-3-510-48033-3, bound, price: 159.00 €

Sphagnum specialist Dierk Michaelis has published an updated and supplemented, English-language version of his (German language) worldwide peat moss flora of 2011, the first synoptic presentation of the genus Sphagnum since Carl Warnstorf's "Sphagnologia Universalis" of 1911.




Compared to the German edition, 12 species and 23 new plates were added, the chapters on phylogeny and research history were revised and a new chapter on Sphagnum ecology has been added.

The author used genetic characteristics to identify the species of problematic groups. The peat mosses are of key ecological and economic importance among the mosses; they populate almost all continents with a clear focus on northern South America, North America, East and North Asia and Europe.

The genus Sphagnum is very isolated within the Bryopsida, similarities in the construction of the sporophyte indicate a distant relation to the rockmosses (class Andreaeopsida). For the internal classification of Sphagnum there are very different approaches with up to four subgenera and up to 18 possible sections, of which 14 are distinguished in this volume.

Peat mosses in the narrow sense (genus Sphagnum) feature a combination of leaf dimorphism (stem and branch leaves), cell dimorphism (living chlorophyll and empty hyaline cells) and branch dimorphism (strongly assimilating spreading branches and hanging branches serving the outer water supply) that is unique among mosses. Although the assignment of any peat moss to the genus Sphagnum usually does not cause any problems, the determination down to the species level causes difficulties sometimes.

The author introduces and describes the anatomy and morphology of Sphagnum, and explains the reproductive biology, the research history and phylogenesis of peat mosses. The systematic part is divided into three segments: description and

identification of the sections, keys for all peat moss species, separated by continents, as well as Sphagnum species' lists for 20 phytogeographic regions of the world. The keys for Africa, Europe and North America are based on existing data and were revised and supplemented with the help of recent descriptions, updated species' concepts and new floristic data.

Completely new identification keys are included for South America and Asia, as these did not exist previously; 292 peat moss species are described in detail, supplemented by data on habitats, geographical distribution and synonym lists. This section is supplemented by a presentation of the inner and outer characteristics on 219 plates. A very comprehensive bibliography completes the volume. Full book description, table of contents, flyer, sample pages and to order online click here: Dierk Michaelis: The Sphagnum Species of the World or the book cover above.


Schweizerbart Science Publishers

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**Spreading the word since 1826**


The IPS Secretariat has asked Professor Harri Vasander for a review for one of the next issues of Peatlands International. Stay tuned!

# Third Finnish Peatland Day held in Helsinki

The third "Suopäivä" was held on the occasion of World Wetlands Day two days before that event, on 31 January 2020 at the House of Science and Letters in Helsinki with 84 participants + online streaming.

The symposium started with four interesting keynote presentations by Annalea Lohila, Jyrki Jauhiainen, Kaisu Mustonen and Kirsi Laurén in the morning, and continued with a dance performance and 22 presentations in two sessions in the afternoon. Also 10 posters were on display.

Aspects of greenhouse gas emissions, peatlands and remote sensing, hydrology, plants and microbiology, economy, culture and conservation, forestry and tropical peatlands were covered. The day ended with a joint buffet. The programme & book of abstracts (in Finnish) can be found at www.suoseura.fi.


Susann Warnecke

Communications Manager
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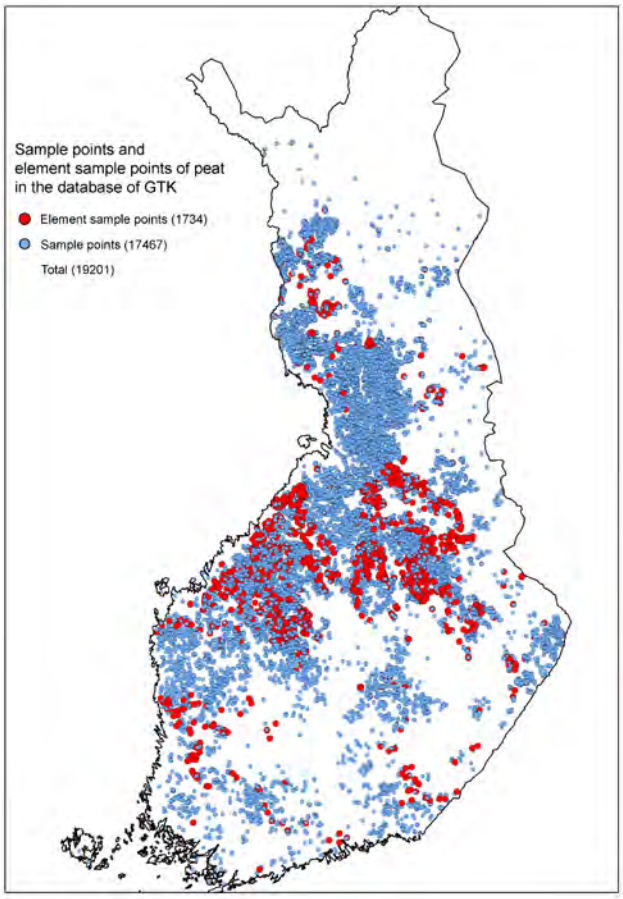
Audience. Photo: Susann Warnecke

# The characteristics of element contents in Finnish peatlands

The Geological Survey of Finland (GTK) has thus far studied 2.3 million ha of Finnish peatland. The peat data generated through peat mapping have been saved in a peat database maintained by GTK. The database contains data on nearly 18 000 peatlands, totalling more than 1.75 million study and depth points. Samples have been taken for more detailed laboratory analyses from nearly 9 900 peatlands. In these peatlands, there have been over 19 000 sampling points, over 1 700 of which have been elemental assay points (Fig. 1).




In addition to recording the peat type and humification, the peat samples have also nearly always been assayed for their ash and water content. Nearly 219 000 ash content and nearly 217 000 water content assays have been conducted. For those samples that have been precisely volume weighted (nearly 182 000), the dry bulk density has been assayed. Over 125 000 calorific value determinations have been performed. The peat sulphur content has been assayed for nearly 66 000 samples and the pH value for over 175 000 samples. In addition, the carbon and nitrogen content has been determined for over 8 500 samples. Most elements have over 7 000 determinations (Table 1).

Elemental assays have been carried out since the 1970s. The majority of the peat sample series taken in connection with peat studies have extended from the surface to near the bottom of the peat layer, with the samples being a continuum of 20-cm sub-samples. Most of the elemental assays in connection with peat mapping have been carried out so that in addition to samples taken from surface and bottom parts, assays have also been conducted on several samples between them. Elemental assays were formerly carried out in the chemistry laboratory of GTK, but following its incorporation in 2006, they have been carried

Fig. 1. The peat sampling points and element analysis points of the peatlands investigated by GTK. Blue peat sampling points in the database of the Geological Survey of Finland are presented, representing the situation in January 2020. The peat sampling points for element analysis are marked with a red colour. There are altogether 19 201 peat sampling points and 1 734 element sampling points (Basemap database © Maanmittauslaitos).

Table 1. The summary of element assays of peat in Finland.

| | mg/kg | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **Al** | **As** | **B** | **Ba** | **Be** | **Ca** | **Cd** | **Co** | **Cr** | **Cu** | **Fe** | **K** | **La** |
| N | 7195 | 7133 | 7171 | 7171 | 7145 | 7195 | 7273 | 7272 | 7202 | 7272 | 7272 | 7195 | 822 |
| Min | 26 | 0 | 0 | 1.96 | 0 | 148 | 0 | 0.05 | 0.1 | 0.2 | 74.1 | 5 | 0* |
| Max | 25300 | 4220 | 67 | 1090 | 18 | 33000 | 6.5 | 1550 | 220 | 389 | 142000 | 7390 | 348 |
| Mean | 2679 | 3.8 | 2.68 | 57.9 | 0.23 | 3998 | 0.26 | 1.63 | 5.67 | 11.26 | 6529 | 166.4 | 9.69 |
| Median | 1860 | 2.5 | 2.5 | 45 | 0.1 | 2870 | 0.25 | 0.5 | 3 | 5.4 | 4420 | 50 | 4 |
| St. Deviation | 2753 | 51.6 | 1.52 | 56.5 | 0.58 | 3456 | 0.16 | 18.9 | 9.34 | 18.1 | 11006 | 350.8 | 21.8 |

| | mg/kg | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **Li** | **Mg** | **Mn** | **Mo** | **Na** | **Ni** | **P** | **Pb** | **S** | **Sb** | **Sc** | **Si** | **Sr** |
| N | 2301 | 7195 | 7272 | 4648 | 7171 | 7272 | 7196 | 7271 | 7173 | 7171 | 770 | 819 | 7171 |
| Min | 0* | 23 | 0.5 | 0 | 2.5 | 0.1 | 52 | 0.025 | 64.5 | 0* | 0* | 4.2 | 0.5 |
| Max | 14 | 4260 | 3590 | 75 | 1010 | 42.7 | 7430 | 3840 | 147000 | 51 | 10.3 | 1030 | 355 |
| Mean | 0.45 | 659 | 78.7 | 0.73 | 47.1 | 6.38 | 550 | 4.5 | 2853 | 2.99 | 1.17 | 143 | 27.5 |
| Median | 0.1 | 523 | 36.3 | 0.5 | 25 | 3 | 471 | 2.5 | 1770 | 0.01 | 0.6 | 132 | 23.3 |
| St. Deviation | 1.06 | 494 | 129.8 | 2.76 | 58.2 | 59.8 | 1135 | 45.5 | 5743 | 3.71 | 1.55 | 88.2 | 19.44 |

| | mg/kg | | | | | | | % | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **Th** | **Ti** | **U** | **V** | **Y** | **Zn** | **Zr** | **C** | **H** | **N** | **S** | | |
| N | 39 | 7170 | 60 | 7170 | 770 | 7271 | 2022 | 8515 | 233 | 8523 | 58482 | | |
| Min | 0.02 | 0.25 | 0.018 | 0.05 | 0* | 0.5 | 0* | 27 | 5.3 | 0.06 | 0 | | |
| Max | 3 | 928 | 80.8 | 786 | 115 | 6750 | 46.2 | 62.7 | 7.91 | 4.52 | 14.6 | | |
| Mean | 0.72 | 70.9 | 4.19 | 12.32 | 5.28 | 13.88 | 2.18 | 51.67 | 6.69 | 1.8 | 0.25 | | |
| Median | 0.21 | 38 | 0.64 | 5.44 | 2.5 | 3.9 | 1 | 52.1 | 6.93 | 1.84 | 0.18 | | |
| St. Deviation | 0.93 | 105.6 | 12.9 | 29.95 | 8.96 | 140 | 3.84 | 3.73 | 0.65 | 0.58 | 0.37 | | |

out by Eurofins Labtium. The assay method used is that involving nitric acid dissolution of dried and comminuted peat (0.5 g) in a microwave oven (US EPA 3051A), and the element concentrations are determined by ICP-OES and ICP-MS. ICP-MS (method 503M of Labtium) can detect elements at very low concentrations.

The element studies of peat do not quite cover the whole of Finland, because in the past fewer element determinations of peat were assayed. Over the last few years however, the regional scope has improved, and elements of peat have been systematically assayed. So the quantity of analyses has grown substantially. At the same time, lower determination limits for As and Cd have been used.

A summary of the peatland, municipality and county-specific data is available via the Internet at the peat resource accounting of GTK (www.gtk.fi/turvevarat), in which the study data are regularly updated. The earlier published municipal reports can be found at the Hakku data service of GTK (https://hakku.gtk.fi/fi/reports).

There you can also find the newly published Turpeen alkuainemääritykset GTK:ssa Summary: The element assays of peat in the GTK (http://tupa.gtk.fi/raportti/arkisto/73_2018.pdf).

The contents of most elements in peat are lower or significantly lower than in mineral soil and are often at the same level as that found in the humus layer (Fig. 2). The cadmium content of peat in the analysis results used in the calculation is on average significantly higher than that found in mineral soil, and on average lower than in the humus layer. In fact, however, the difference is not so clear, because the element content of many of the elements in the peat samples analysed have been under the assay limit. The molybdenum content of peat is at the same level as that found in humus and mineral soil.

The sulphur content of peat is nearly one-fifth higher than the corresponding value of humus. Compared with mineral soil, the sulphur content of peat is approximately eight to 39 times higher. Sulphur therefore clearly appears to be enriched in the peat and humus layer, which mostly results

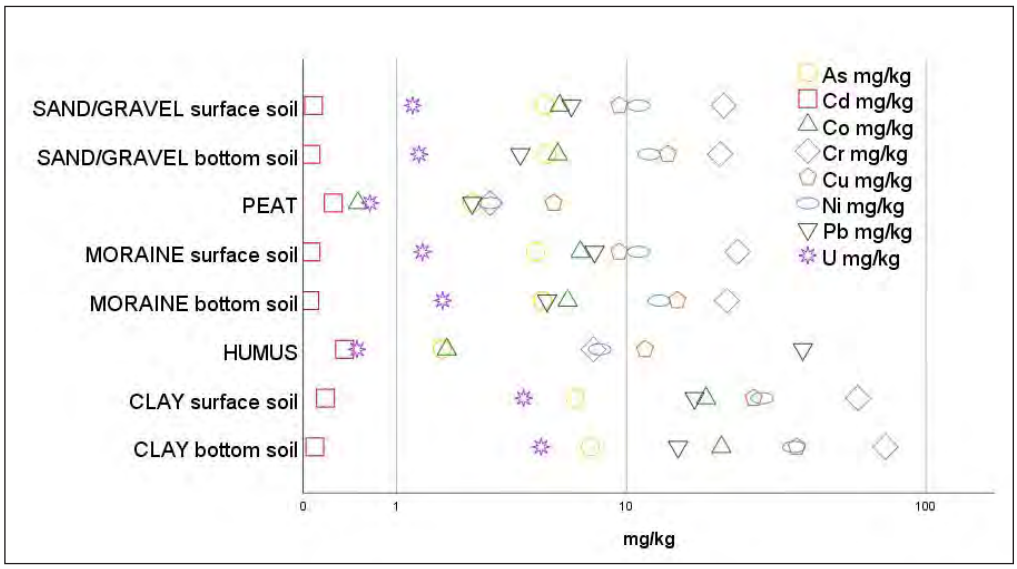



Fig. 2. The median contents of arsenic, cadmium, cobalt, chromium, copper, nickel, lead and uranium in peat, humus and various soil types.

from the presence of black schist zones nearby (Herranen 2009, Herranen & Toivonen 2018).

High element contents of peat often indicate the presence of black schist zones nearby, but high element contents can additionally be useful in ore prospecting, because the surrounding bedrock is also otherwise reflected in the element content of peat (Salmi 1955). Black schists are rock types which contain carbon as graphite, and they form thin belts in schist series. They are easily weathered (Virtanen & Lerssi 2006, 2008).

In black schist areas (Fig. 3) the average aluminium, arsenic, barium, cadmium, cobalt, chromium, copper, iron, manganese, nickel, lead, sulphur, titanium, uranium, vanadium, zinc and ash contents of peat are often higher than normal. Taking note of black schist zones and having a denser spacing of analysis points in the neighbourhood of these zones might be reasonable, if a peatland is found to be either a potential peat harvesting area or suitable for other use. The abundant occurrence of potential sulphide soil under the peat stratum also increases the need for denser placement of analysis points.

Many elements in peat have quite large distribution and on the other hand many elements in peat have quite even distribution (Fig. 4).

The results of the element assays of peat can be utilized regionally in the planning of land use and after-use of peat harvesting areas, for instance. In addition, it is possible to gain a more exact understanding of regional geochemistry and the risk areas of heavy metals. The data play a very important role in developing new ways and possibilities to use peat and peatlands.

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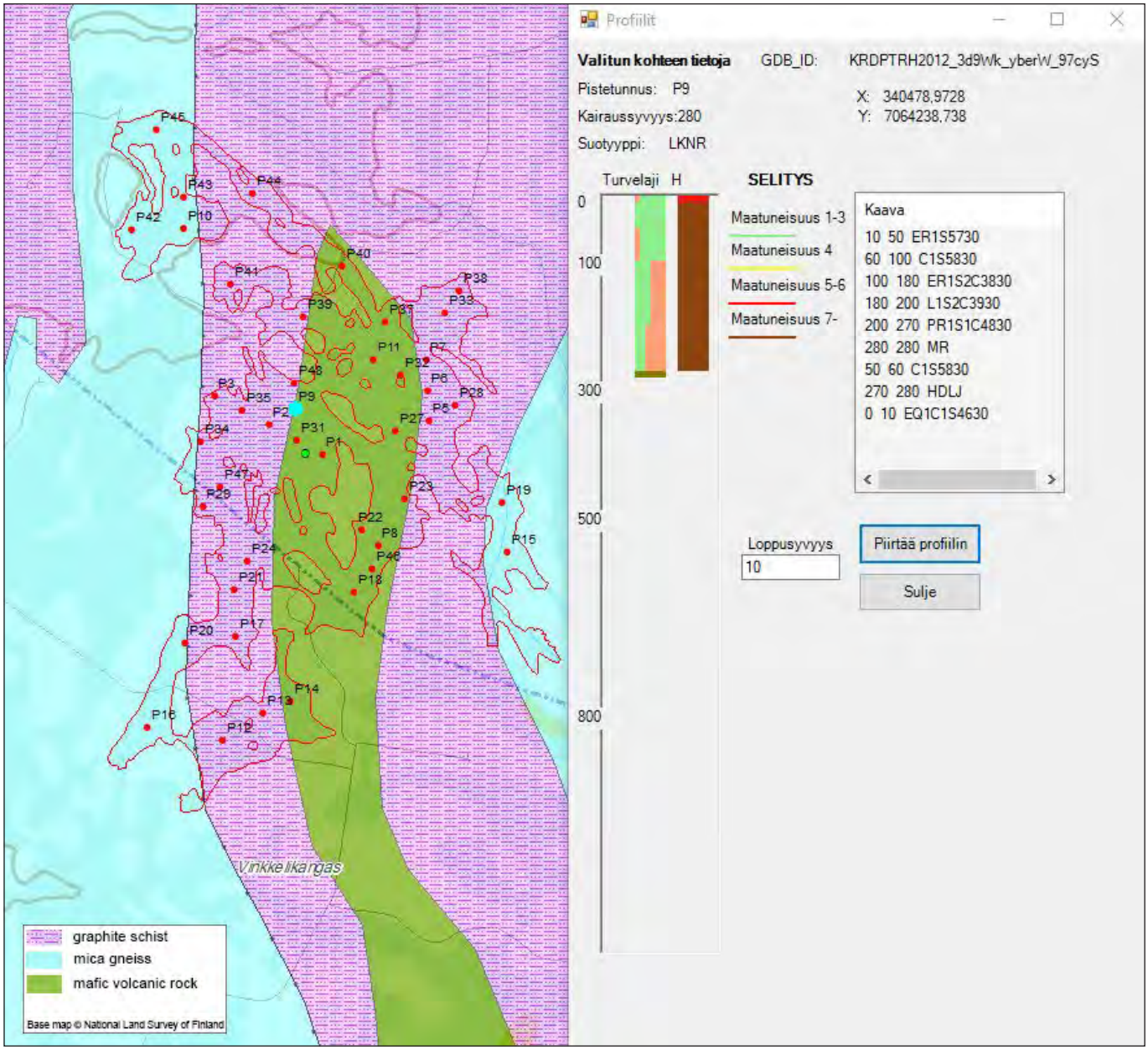



Fig. 3. The peatland on the black schist zone and the boring profile. Kairaussyvyys = boring depth, suotyyppi = peatland type, LKNR = low-sedge pine fen, turvelaji = peat type, Maatuneisuus = humification. Base map © National Land Survey of Finland.

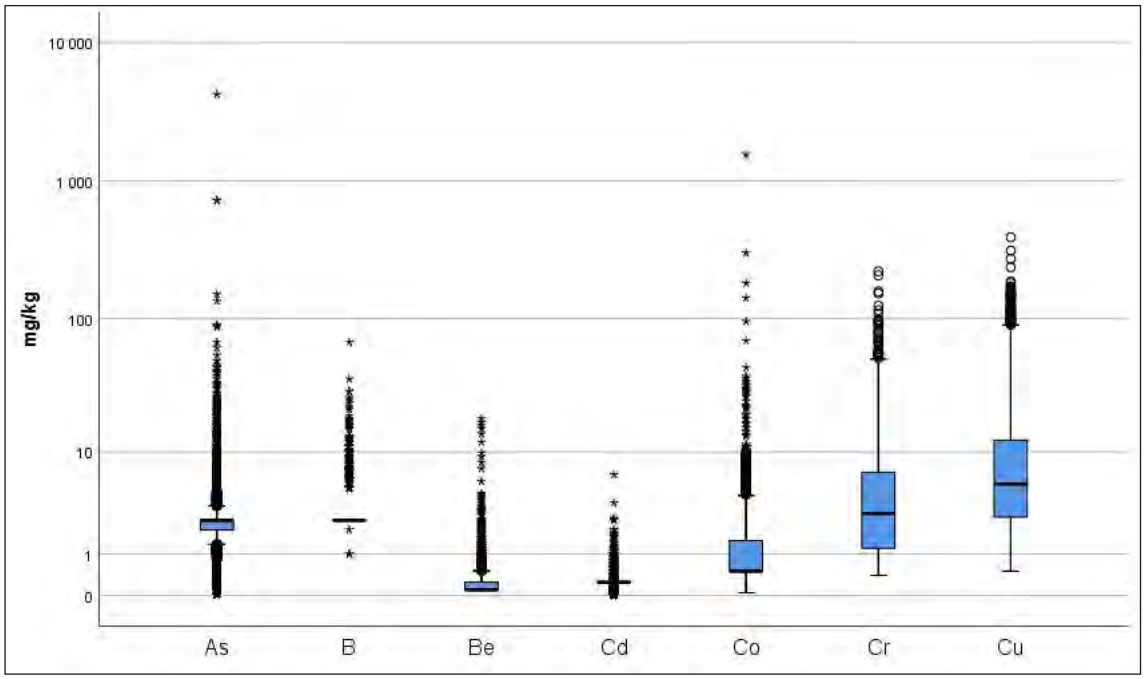
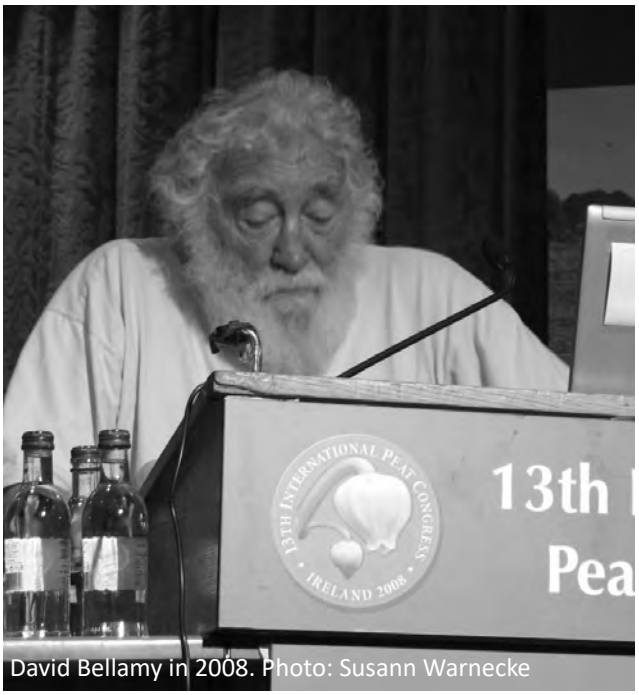



Fig. 4. The distribution of arsenic, boron, beryllium, cadmium, cobalt, chromium and copper in peat presented as a box plot (N = 6 920).

# In memoriam: Professor David Bellamy 1933 - 2019



David Bellamy in 2008. Photo: Susann Warnecke

Professor David James Bellamy, an internationally renowned botanist, peatland ecologist, environmentalist and broadcaster died in December 2019 age 86. He inspired many undergraduate and postgraduate students during his time as lecturer at the University of Durham and as a broadcaster, presenting many popular programmes on television to bring to the public many topics on biodiversity and peatlands. As an environmentalist he became involved in direct action.

David was born in London in 1933, the son of Winifred and Thomas Bellamy. By the age of six he had survived pneumonia and nephritis and by 12, the Second World War. He attended Sutton County Grammar School and Ewell Technical College, Epsom where he obtained his first job as a laboratory technician. His higher education was rather unusual, obtaining a degree in botany at Chelsea College of Science and Technology (later merged with King's College London) then, in 1957, moving on to a Ph.D. at Bedford College, University of London. This was on the Peatlands of Europe from Iceland to the Mediterranean.

He published more than 80 scientific papers and supervised more than 36 Ph.D. students in many aspects of ecology, not only peatland. He met Rosemary Froy at Ewell College and they married in 1959. Rosemary sadly passed away in 2018. They had five children, four of whom were adopted.

In 1960 he was appointed as lecturer in botany at the University of Durham in the northeast of England where he was Senior Lecturer from 1968 to 1982 when he decided to devote his energies full-time to broadcasting, media and environmental activities. He remained as Honorary Professor for Adult Education and Continuing Education at the University of Durham. In 1994 he was appointed OBE (Officer of the Order of the British Empire).

On his 80th birthday he presented the inaugural David Bellamy lecture to Prince Philip at Buckingham Palace to more than 100 colleagues

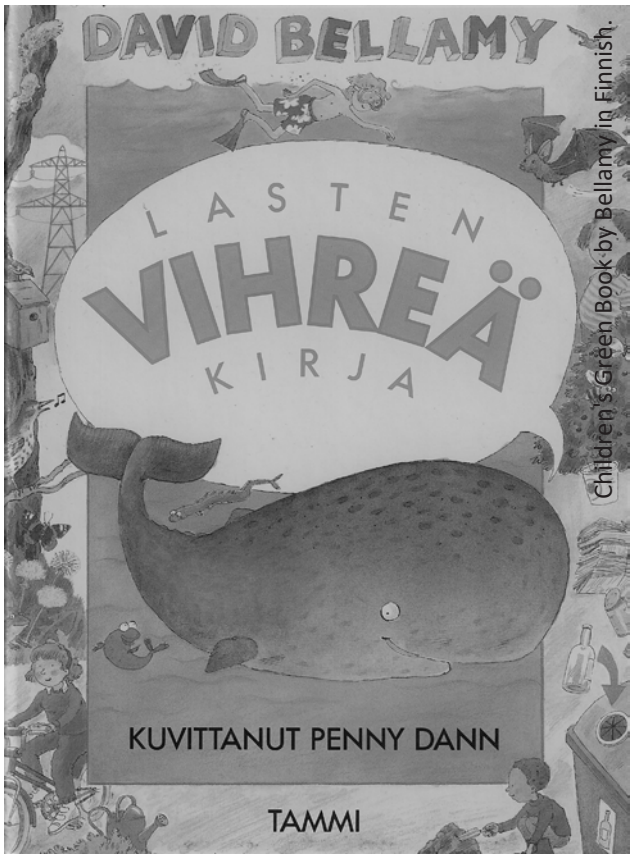
and friends. It is now an annual lecture. David joined the International Peat (now Peatland) Society on its formation in 1968 and remained a member until his death 51 years later. He was an Honorary member of the Society.

David first appeared on television in 1967 when he was interviewed about the oil spill from the Torrey Canyon tanker. From 1970 onwards he wrote and presented more than 400 TV series and programmes not to mention some 40 books. His output was prolific, and he also played a part in environmental causes in which he often attracted controversy. For example, he joined 1200 others on a picket in Tasmania, protesting construction of a dam on the Gordon River. David was arrested, refused bail and spent his 50th birthday in prison. The dam was never built being cancelled by Australian Prime Minister Bob Hawke who was elected soon after.

He was closely associated with the environmental lobby for several decades and held honorary positions in many organisations. His major achievement was the Conservation Foundation that he established in 1982 jointly with David Shreeve who is still its Director. In later years David became disillusioned with mainstream activists whom he upset over hunting, windfarms and climate change. As was his nature, he questioned the scientific basis that led others to assert that human-induced greenhouse gas emissions are the main drivers of climate change. This led to a major disagreement with journalist George Monbiot.

For a time, David also dabbled in politics, standing as Referendum Candidate against John Major in the 1997 General Election when he received 3114 votes. Some organisations he was patrons of or associated with became disenchanted with his controversial views and began to distance from him as his popularity waned.

I first met David in June 1963. I had just received my Honours degree in Botany from the University of Glasgow and was considering doing a Ph.D. in the same university. A junior lecturer recommended I visit the University of Durham



Children's Green Book by Bellamy in Finnish.

where another young lecturer had a research scholarship available for studies on plant ecology. I immediately travelled south where I was hosted by David and his wife Rosemary for a few days to discuss possibilities. I was impressed by David's enthusiasm and energy and accepted. This led to a fundamental change to my own life plans and prospects, introduced me to peatlands, and started me on a fantastic journey that has not yet ended. I owe David much. I became familiar with his many interests and his failings and we had many arguments and discussions but never fell out.

David James Bellamy, botanist and environmentalist, born 18 January 1933; died 11 December 2019. His wife Rosemary died in 2018, and a daughter, Henrietta, died two years ago. He is survived by two sons, Rufus and Eogain, and two daughters, Brighid and Hannah.

Jack Rieley

January 2020
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# In memoriam: Professor Dr. Renate Klöcking 1935 - 2017

We have only just learned that sadly our long-time member, Professor Dr. Renate Klöcking, passed away on 29 November 2017.

Professor Dr. Klöcking was born in Nossen, Saxonia, Germany, in March 1935. After completing her A-levels in Leipzig, she studied Biology with a major in Biochemistry in Leipzig und Halle-Wittenberg.

Photo: Riitta Korhonen

In 1962, she obtained her PhD with a thesis on: "Humic acids of natural water bodies - quantitative determination and characterization by their oxydimetric properties" at the Mathematics-Natural Sciences Faculty of Halle-Wittenberg University.

Humic acids also dominated her scientific career. With her work "Investigations on substances of humic acid type and their metallic compounds" she received her habilitation in Physiologic Chemistry at the Medical Faculty of the University of Rostock in 1967.

In 1969 she became Lecturer for Medical Biology at the University of Erfurt, and 1978 Extraordinary Professor for the same field at the then Medical Academy. In 1993 she obtained Professorship for Biochemical Virology at the Medical University.

Starting from 1994, Professor Dr. Klöcking taught at the University of Jena and from 2004 as Guest Professor for Humic Substances at the University for Applied Sciences Zittau/Görlitz.

Professor Dr. Klöcking was a member of the German Peat Society (DGMT) from 1990 and held the C.A. WEBER-Medal. From 1993 to 2009 she chaired Section IV of the DGMT on Chemistry, Physics and Biology. While carrying out this task, she organized numerous conferences and symposia, among others the

"Bad Langensalza Peat Symposia". International information exchange was especially close to her heart and she kept a strong connection to the IPS.

Between at least 2001 and 2007, Renate Klöcking and her husband, Hans-Peter, lead the IPS working group on peat medicine and peat preparations. Many will remember the couple from the Stockholm Congress.

The German Peat Society and IPS have lost a long-standing, active and scientifically extremely important member. We will remember her friendly, empathetic way of dealing with people and keep her forever in our memory.

Riitta Korhonen wrote, in addition, that Professor Klöcking visited Finland many times. Last time, in September 2010, she and her husband Hans-Peter participated in IPS' VI Commission's Balneological Symposia in Kurikka.

At Reino's cottage in Finland. Photo: Riitta Korhonen

Renate Klöcking at IPC2012. Photo Yvonne Felber

There they gained special experience of the balneological use of peat in saunas and also visited a beautiful Finnish mire near Reino's cottage. During the trip it was so cold that Reino had to give them reindeer waistcoats (photo on the left).

The last IPS symposium where they both participated was in Riga on 10 October 2017. Renate had the very best knowledge of humic acids and their efficiency.

We will keep her forever in our memories.

Andreas Bauerochse, Susann Warnecke & Riitta Korhonen

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# New Members of the IPS

New members (or new contact persons for corporate and institute members) are mainly approved by our National Committees. For all other countries, the approval is made by the Executive Board of the IPS. Each National Committee is asked to compare their membership list to that of the IPS at least once a year (status below as of 3 April 2020) More info: www. peatlands.org/join-us.

**Student members:**
Australia: Anne Yusuf
Singapore: Hasan Akhtar

Welcome to the IPS!

**Corporate & institutional members:**
Germany: Bert von Seggern (Klasmann-Deilmann GmbH)
Finland: Leena Hakulinen, Tuula Virmiala (Vapo Oy)
The Netherlands: Interservice Apollo ISC
Sweden: Sylvia Jonsson (Branschföreningen Svensk Torv)
United Kingdom: Jacqueline Wright (Micropropagation Services (EM) Ltd), James Morison, Mike Perks, Nadeem Shah, Elena Vanguelova, Georgios Xenakis (Forest Research)
USA: Syed Ashraf (BASF Corp.)

**Individual members:**
Australia: Samantha Grover
China: Xiangfu Huang, Liangyun Li, Guanghui Liu, Haibi Luo, Zhiyong Qi, Zhengping Wang, Jianfeng Wu, Yuan Xu, Songdong Yang, Zhongxing Zhang, Jizhong Zhang, Zeqiang Zhang
Finland: Meri Tuomainen
Indonesia: (all sorted by second names for technical reasons) Deni A Novendi, Mahmud A Raimadoya, Muhammad Abdul Aziz, Gatot Abdul R., Bargowo Addianto, Rahadian Adi P., Achmad Adi Surya, Abdulrachman Adimihardja, Teguh Adiprasetyo, Bayu Adirianto, Dessy Adriani, Agustira Ady Syachputra, Nur Afni, Andi Agus A. Oddek, Rujito Agus Suwignyo, Nurmaranti Alim, M. Alwi, Mirawanty Amin, Iswandi Anas, Rendy Anggriawan, Wahida Annisa, Gusti Z. Anshari, Syaiful Anwar, Chairil Anwar Siregar, Denri Aprianto Nugroho, Indah Apriliya, Didi Ardi Suriadikarta, Maulia Aries Susanti, Chusnul Arif, Silviana Arsyad, Sitanala Arsyad, Yudha Asmara Adhi, Dwi Asmono, Asrifin Aspan, Dwi Astiani, Saefoel Bachri, Tidar Bagaskara, M. Bambang Prayitno, Baba Barus, Hairul Basri, Joshua Breinh Mamana Ginting, L. Budi Triadi, Feira Budiarsyah Arief, Yudi C.L. Pakpahan, Affan Chahyahusna, Zafrullah Damanik, Andre Dani Mawardhi, Adre Dani Mharwadi, Ai Dariah, Suria Darma Tarigan, Witjaksana Darmosarkoro, Harris Dharsono, Wawan Dinawan, Salampak Dohong, Marissa Dwi Putri, Enni Dwi Wahyunie, Ramces Efristhon Situmorang, Prilly Eka Putri, Luqman Erningpraja, Arthur F.C. Regar, Lukman Fadli, Ermanto Fahamsyah, Albertus Fajar Irawan, Arief Fidiansyah, Andri G. Wibisana, I.G.M. Subiksa, Komarsa Gandasasmita, Bia Ganefia, Pratiwi Gianina, Petrus Gunarso, Andrianto Gunawan, Ernest Gunawan, Inra Gunawan, Abdul Hadi, Sapto Hadi Winarno, Siti Hajar, Abdullah Halim PKS, Agus Halimi, Herman Hanafi, Lili Handayani, Anwarsyah Harahap, Andria Harfani Qalbi, Mimien Harianti, Didik Hariyanto, Nur Hartanto, Arief Hartono, Hasril Hasan Siregar, Inez Havirsa, Fahrizal Hazra, Jon Hendri, Nora Herdiana Pandjaitan, Benny Hermaan, Benny Hermawan, Ahmad Hidayat, Geoffrey Hope, Mamat Hs, Saberina HS, Edi Husen, Rapollo Hutabarat, Syafitri Indriaswari, Fuadi Irsan, Isro Ismail, Asdar Iswati, Nur Izza F. Himmah, Yusurum Jagau, Janice Jap, Adi Jaya, Benny Joy, Arjuna Judeo S, Nirmala Juita, Fany Juliarti Panjaitan, Ulfah Juniarti Siregar, Agus Kamarusman, Abubakar Karim, Desak Ketut Tristiana Sukmadewi, Faustinus Khada, Popi Komalasari, Ahmad Kurnain, Cahyo Kurniawan, Amanda Kusuma Dewi, Neneng Laela Nurida, Irsal Las, M. Lukman Fadli, Mariana Lusia Resubun, Azwar Maas, Eni Maftuah, Yuki Mahardhito Adhitya, Andi Marchell H., Ika Mariska, Ermawaty Marodhy, Rianto Marolop, Ali Martinus, Kusnu Martoyo, Kartika Megawati,

Husni Mubarok, Laode Muhammad Asdiq Hamsin Ramadham, Arus Mujijat, Hardy Mulia, Anny Mulyani, Sri Mulyani, Budi Mulyanto, Ronny Mulyawan, Gilang Munggaran, Setia Murni T., Kukuh Murtilaksono, A. Muslim, Evi Mutiara Dewi, Liska Mutiara S., Desi Nadalia, Mukhamad Najib, Zuldadan Naspendra, Foead Nazir, Muhammad Noor, Dian Novarina, Eko Noviandi Ginting, Wahyudi Nugraha Putra, Tomas Nugraha Rosasi, Budi Nugroho, Kusumo Nugroho, Andi Nurdaaniyah, Deddy Nursyamsi, Septi Nurul Aini, Liza Nurul Hayati, Sri Nuryani, Sri Nuryani Hidayah Utami, Siti Nurzakiah, Hening Nusa Prayuda, Morgan Ohiwal, Agung Perdana Tunggal Siregar, Marisa Permatasari, Ici Piter Kulu, Iput Pradiko, Dedy Prasetyo, Setyardi Pratika Mulya, Prasetya Prio Utomo, Ragapadmi Purnamaningsih, Rima Purnamayani, Wahyu Purwakusuma, Dwi Putro Tejo Baskoro, Rusiadi R, Ladiyani R Widowati, Arief R.M. Akbar, Latief M. Rachman, Bostang Radjagukguk, Dasrizal Raham, Sapta Raharja, Eka Rahmi, Suroso Rahutomo, Popi Rejekiningrum, Vinny Rindiyani Febrianti, Sofyan Ritung, Khoirul Rizal, Akhmad Rizali, Tatu Rizkia, Sri Rochyati, Rovy Roland, Nika Ropiatningsuri, Febrianti Rosalina, Yusi Rosalina, Ery Rura Panahatan Batubara, Edy Rusmawanto, Ernan Rustiadi, Asmadi Sa'ad, Saeri Sagiman, Bandung Sahari, Edward Saleh, Selly Salma, Yanto Santosa, Joko Santoso, Inrianti Sari Handayani, Dewi Sartiami, Muhrizal Sarwani, Nanda Satya Nugraha, Iwan Setiawan, Dwi Setyawan, Diah Setyorini, Mukesh Sharma, Dja'far Shiddieq, Rizatus Shofiyati, Aslan Sianipar, Bambang Sihatno, Saut Sihombing, David R. Simbolon, Maurits Sipayung, Sabar Siregar, Warsito Siswowiyoto, Togar Sitanggang, Santun RP Sitorus, Joko Siyono, Erizal Sodikin, Indratmo Soekarno, Purwadi Soeprihanto, Agus Sri Mulyono, Cahyo Sri Wibowo, Henri Subagiyo, D. Subardja, Urai Suci Yvi, Untung Sudadi, Rhuwanda Sugardiman, Octen Suhadi, Nata Suharta, Dona Suhmana, Dedi Sukandi, Dodi Sukardi, Gilang Sukma Putra, Yuli Sukmawati, Yiyi Sulaeman, Mey Sulistyo Putri, Putu Sunitya Candra Dewi, Dudi Supardi, Ade Suryana, Erna Suryani, Edi Suryanto, Atang Sutandi, Toni Sutrisno, M. Syaefudin Andrianto, Catherina T Hasibuan, Martua T. Sirait, Sartji Taberima, Nizam Tambusai, Usman M. Tang, Darmono Taniwiryono, Hesti Lestari Tata, Mas Teddy Sutriadi, Zuraida Titin Mariana, Dyah Tj. Suryaningtyas, Boedi Tjahjono, Lilik Tri Indiyati, Putri Tria Santari, Muhadjir Utomo, Roe W. Nusantara, Agus Wahyudi, Nur Wakhid, Ruli Wandri, Tony Wenas, Gede Wibawa, Happy Widiastuti, Hermanu Widjaja, Kryanto Widodoe, Alwan Wijaya, Herland Wijaya Kusumo, Hari Witono, Baron Y Setiawan, Suparma Yacobus, Ifan Yani, Irsyal Yasman, Rika Yayu Agustini, Muhammad Yazid, Adiningsih, Hartanto, Husnain, Ikhsan, Irmawati, Iskandar, Jamaludin, Johan, Masganti, Masliani, Maswar, Mulyadi, Munandar, Mursalin, Novindra, Numartamtoro, Nurhayati, Nurmegawati, Nurwadjedi, Periasamy, Santobri, Selamat, Siswanto, Soewarso, Stanislaus, Sudarsono, Sudradjat, Sugihartana, Sukardi, Sukarman, Sungkono, Suntoro, Suratman, Sutarno, Suwondo, Suyono, Syekhfani, Wahyudi, Wahyunto, Wawan, Widiatmaka, Winarna, Zainal, Zulkarnain

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# Peat and Peatland Events

**Cancellations or changes of dates due to Covid-19 threat possible. Check the event websites for updates!**

Finnish Bioenergy Association
Spring Meeting
16 April 2020 online
www.bioenergia.fi

IPS Executive Board Meeting
Early May, online

IPS Annual Assembly
June, online

EGU2020: Sharing Geoscience Online
First week of May, online
www.egu2020.eu

Cancelled: 15th SWS Europe Meeting: Connecting wetland research, policy and practice
Wageningen, the Netherlands
25 - 27 May 2020 - check for new dates:
www.wur.nl

**First World Peatland Day**
**2 June 2020 online**
**www.peatlands.org/event/world-peatland-day**

IV. ISHS International Symposium on Horticulture in Europe (SHE)
Stuttgart, Germany
2 - 6 June 2020
https://she-ihs-fav2020.de

GLF Bonn 2020: Food in the time of climate crisis
Bonn, Germany & online
4 - 8 June 2020
https://events.globallandscapesforum.org/bonn-2020

SIWI World Water Week 2020
Stockholm, Sweden
23 - 28 August 2020
www.worldwaterweek.org

AsiaFlux Conference 2020
Kuching, Sarawak, Malaysia
22 - 24 September 2020
www.asiaflux.net

Postponed: UNFCCC COP 26 CMP 16 CMA 3
Glasgow, Scotland, United Kingdom
9 to 20 November 2020 - new dates to be announced
https://unfccc.int

IUCN World Conservation Congress
Marseille, France
7 to 15 January 2021 (new dates!)
www.iucn.org

Tenth International Symposium on Land Subsidence (TISOLS)
Delft-Gouda, the Netherlands
17 - 21 May 2021 (new dates!)
www.tisols2021.org

**16th International Peatland Congress**
**2nd Global Peatland and Peat Industry Summit**
**Tallinn, Estonia**
**Summer 2021 (new dates!)**
**www.ipc2020.com**
**www.facebook.com/peatlandcongress**
**www.facebook.com/events/1162609177193984**

9th SER World Conference on Ecological Restoration and Québec RE3 Conference 2021
From Reclaiming to Restoring and Rewilding
Quebec City, Canada
19 - 24 June 2021 (new dates!)
www.re3-quebec2021.org



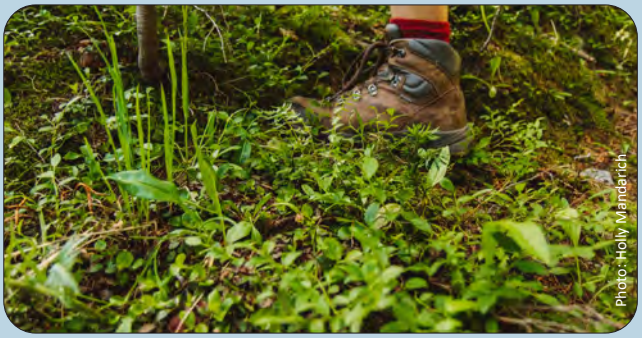
More at: www.peatlands.org/events

# Next issue...

## You are welcome to write!

Please send your manuscript (500-2000 words, A4, Arial, no full cap lines, with author contact details, language proofread if possible, e.g. **www.englishproofread.com**), photos and illustrations (separate jpg files with the names of the photographers, you need to have copyrights and persons' consent) and advertisements (pdf files, prices according to Media Kit) to susann.warnecke@peatlands.org.

Submission deadline: PI 1.2020: **1 June!**




Reports on the Allan Robertson Grants 2019

New IPS Executive Board and Scientific Advisory Board



Your article here!