

Peatlands

International

issue 3.2015



Take part in the International Peat Congress 2016
Common Ground: Partnership conserves Canada's boreal peatlands
Baltic Peat Producers' Forum 2015: A cosy gathering under a turbulent theme
Leivonmäki, Kuusa, Pyhä-Häkki & More... Suoseura in Central Finland
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Spotlight on *Molinia caerulea* in the English and Welsh Uplands
Restoration of Peat Forming Sphagnum Mosses on Girley Bog
Sisal Geotextiles For Peatland Restoration



15th International PEAT Congress 2016

Organized by

MALAYSIAN PEAT SOCIETY

In Partnership with

INTERNATIONAL PEATLAND SOCIETY

15 - 19 August 2016
Pullman Hotel, Kuching,
Sarawak, Malaysia

Organized by



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Peat Society
of Indonesia



Editorial

Until 30 November!

The IPS is busy. The 15th International Peat Congress is next year and it is clear that our researchers and corporate members are getting excited. Are you coming to the Congress? How are you getting to Malaysia? Are you a sponsor of this unique event? These are the questions that our member institutes and companies are dealing with.

I truly hope that many of you are up for the challenge of making it to Kuching. We look forward to an event that will combine the East and West, North and South, and all of the peatland knowledge that is currently available. We know that the peat interests are manifold and that there are industry matters, horticulture interests, conservation, climate, certification and energy questions that none of us can resolve on our own. However, if we put our information together and meet for a week, we can see what can be done.

We warmly invite you to come to the Congress and take part in the discussions. You have until 30 November to write your presentation proposal, the scientific abstract, and send it to the Congress Secretariat. On the following pages, you will learn how to do this. We also invite you to share



Pine with lichens in Pyhä-Häkki. Photo: Susann Warnecke

information about the Congress on all possible media - in your mother tongue, on the Internet, on social media, during local and global events and tea or coffee talks. Let your folks know that it this event is worth participating in. We truly look forward to meeting you.

Peatlands International is the global magazine of the International Peatland Society (IPS). It provides the more than 1,400 corporate and individual members of the Society with up-to-date information on peat and peatland matters, reports and photos of conferences and workshops, background reports and publication reviews.

To serve all of our members, we provide always a good balance between economic, social and environmental points of view. To receive Peatlands International in your email every three months, visit www.peatlands.org/join-us and sign up as a member.

There are also other important things that IPS is busy with. As you know, we are working on the Strategy 2016-2020 and ideas on how to implement and fund it. One main tool to implement the strategy is people. After the next Congress, many of us will retire or face other tasks. Are you willing to take over as the Chair of Commission, leader of a National Committee or as a member of the Executive Board? We need new ideas, new faces and new strengths to help us keep up with 2016's speed. Think about the possibility of getting more involved.

In this issue, you will find examples of what the IPS members are working and cooperating on. As in the past, we are covering issues of nature conservation, peatland restoration, the utilization of peat and peatlands, and the newest research findings. Aspects of special interest include using sisal as a product to build dams or how peatlands can be mapped using modern technology. Perhaps you have attended the Baltic Peat Producers' Forum and want to see some pictures? There is something in store for all of our readers.

Finally, I would like to invite you to have a look at the IPS membership list on our Intranet (www.peatlands.org - for members) and check out which of your colleagues are "missing". I am sure that there are much more people involved in peatland management who could be members of our Society. Let them know about IPS, invite them to our local events and let them grow with us. This is especially for your students and young workers.

We wish all of the IPS members a sunny and busy autumn. Remember to sign up for the Congress mailing list, share our information and just enjoy being a member of the "peatland family". Remember to also follow us on LinkedIn and Facebook - and write articles for Peat News and Peatlands International on what interests you most - let's keep in touch.

Susann Warnecke

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www.peatlandsinternational.wordpress.com

Peatlands International
ISSN: 1455-8491

Publisher: International Peatland Society
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Cover: Leivonmäki National Park, Finland. Photo: SW
www.peatlands.org/publications/peatlands-international

To receive Peatlands International for free and by email, become an IPS member: www.peatlands.org/join-us.



For the online versions of our articles and more background information, go to Peatlands International's own website and blog at www.peatlandsinternational.wordpress.com and type ->

password: **ipsmember13**

This will give all IPS members reading access during July 2015 - December 2015.

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Leivonmäki, Kuusa, Pyhä-Häkki
& More... the Finnish Peatland
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Take part in the International Peat Congress 2016!

It is our great pleasure and honour to welcome delegates and guests from around the globe to the 15th International Peat Congress (IPC) in Kuching, Sarawak, Malaysia, from August 15th to 19th, 2016.

This prestigious Quadrennial Convention will be hosted by the Malaysian Peat Society (MPS) in partnership with the International Peatland Society (IPS). It will be the first time in the Society's long history of organising this Congress that it will convene at a location outside of Europe and North America, and also in South East Asia.

The theme of the Congress is Peatlands in Harmony - Agriculture, Industry & Nature. Presentations will relate to an integrated global perspective for the responsible use of peatlands and the preservation of their unique dynamics and natural biodiversity.

The Congress will also provide for researchers, academics and practitioners an ideal platform to congregate, share information and discuss their scientific results and experiences with particular reference to peat and peatlands in the tropics, but also boreal and temperate areas, including all aspects of peatland management.



IMPORTANT DATES

Programme & Announcement	31 st Dec 2015	Third Announcement
	1 st Jul 2016	Final Programme
	15 th – 19 th Aug 2016	15 th International Peat Congress 2016
Registration	15 th Sep 2015	Registration Open
	31 st Mar 2016	Early Bird Registration Close
	31 st May 2016	Normal Registration Close
Abstracts Submission	15 th Sep 2015	Open Call for Abstracts
	30 th Nov 2015	Abstract Submission Deadline
	30 th Dec 2015	Notification of Paper's Acceptance/Rejection
	15 th Feb 2016	Extended Abstract Submission Deadline

PROGRAMME AT A GLANCE

	Sunday, Aug 14	Monday, Aug 15	Tuesday, Aug 16	Wednesday, Aug 17	Thursday, Aug 18	Friday, Aug 19	
08:00	Registration Open	Posters and Commercial Exhibition Set-Up	Registration	Scientific Sessions	Scientific Sessions	Annual Assembly, General Assembly & Closing Congress	
09:00	IPS Scientific Advisory Board		Opening Ceremony & Exhibition				
10:00			Coffee Break				
11:00	Executive Board	EXCURSIONS	Scientific Sessions	Scientific Sessions	Scientific Sessions	Annual Assembly, General Assembly & Closing Congress	
12:00			Lunch Break				
13:00	Briefing for Session Chairs		EXCURSIONS	Scientific Sessions	Scientific Sessions	Scientific Sessions	
14:00		Tea Break					
15:00	Ice-Breaking Party	EXCURSIONS		Scientific Sessions	Scientific Sessions	Scientific Sessions	
16:00			Poster Session	Poster Session	IPS National Committee Round Table		
17:00	Ice-Breaking Party		EXCURSIONS	IPS Business and Technical Meetings	Gala Dinner	BBQ Dinner	
18:00		Ice-Breaking Party		EXCURSIONS	IPS Business and Technical Meetings	Gala Dinner	
19:00	Ice-Breaking Party						
20:00		Ice-Breaking Party	EXCURSIONS		IPS Business and Technical Meetings	Gala Dinner	BBQ Dinner
21:00	Ice-Breaking Party			EXCURSIONS			

The 15th International Peat Congress 2016 includes:

1. Opening Ceremony
2. Plenary Congress, Oral / Poster Presentation and Exhibition
3. Ice-Breaking Party – Welcome Reception
4. Gala Dinner
5. Excursions
6. Closing Ceremony

Sarawak, Malaysia's largest state, famously known as the Hidden Paradise of Borneo and the Land of the Hornbills, is lavishly endowed with impressive natural landscapes, cultural diversity and friendly and welcoming people.

Sarawak also offers up-to-the-minute convention facilities and technology.

As such, it is the perfect venue for delegates to confer, network, gain inspiration, soak up the local scenery (including some interesting peatlands) and relax.

The Sarawak State Government, the Federal Government of Malaysia and the corporate sector nationwide are fully committed to supporting the Congress. On our part, I can assure you that the Malaysian Peat Society has already determined that the 15th International Peat Congress will set a

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international peat congress

ipc2016.com

new standard for International Peat Congresses. I believe that this Congress will provide you with a fruitful intellectual experience as well as a memorable visit to Sarawak. We look forward to seeing you on our shores!

Dr. Lulie Melling

Congress General
lulie.melling@gmail.com



The poster features a vibrant background of a tropical peatland with a large hornbill on the left and a red pitcher plant on the right. In the center, a stylized logo depicts a green hill, a blue river, and a brown peat mound. The text is as follows:

15th International PEAT Congress 2016
15-19 August 2016
Sarawak, MALAYSIA

Organized by **MPS** MALAYSIAN PEAT SOCIETY

In Partnership With **ips** International Peatland Society

www.ipc2016.com

ABSTRACT SUBMISSION GUIDELINES

Please follow the guidelines strictly to avoid non-processing.

Quick Guide:

1. Your abstract must be submitted ONLINE and in ENGLISH.
2. Your abstract must NOT exceed 300 words.
3. It should NOT include diagrams and tables.
4. Prepare your text with Arial font, size 10 for body and size 12 for the title.
5. Single spaced text in a single paragraph without any indentation.
6. Copy and paste the text (without the title and the list of authors) in the indicated field.
7. Copy and paste the title and author's names in the specified box.
8. FULL CAPS are NOT allowed.

Presentation Type

You can submit your abstract for the following types of presentation:

1. Oral presentation
2. Poster presentation

Detailed Guidelines:

1. Abstracts are to be submitted via the online submission form at **www.ipc2016.com**.
2. In the abstract submission module, authors are requested to register themselves, to fill in a form on author's information, to select the form of presentation, to suggest under which theme and sub-theme the contribution should appear, and finally to submit the abstract.
3. Please note that sub-themes are preliminary and may be subject to change. The author will have access to his/her abstract- for modifications- until the abstract submission is closed.
4. The abstracts must be written in English language and contain the title of the paper (maximum 20 words), main text of abstract, maximum 300 words including key words (maximum 5 words) as well as introduction, description of methods, main results and conclusions in written form.
5. Do not include figures and tables in the abstract.
6. All abstracts will be reviewed and evaluated by the Scientific Committee.
7. Primary selection criteria are scientific quality, relevance to the Congress themes and clarity of expression.
8. The Scientific Committee does NOT have the capacity to edit or correct language shortcomings.
9. Abstracts that are e.g. ambiguous, irrelevant or scientifically outrageous may be rejected.
10. Authors who are not fully conversant in English are encouraged to have it edited to check the

language before submitting the abstract. (eg. www.englishproofread.com)

11. The deadline for submitting the abstracts is on **30th November, 2015**. The abstracts will be evaluated starting from **1st December, 2015**.
12. Following the acceptance of an abstract, the author(s) will be requested to submit an extended abstract (=short article).
13. These manuscripts must not exceed 5 pages (including abstract, figures, tables and references), and should be up to full scientific standard in English language following conventional scientific writing style or format.
14. Detailed instructions for extended abstracts will be issued later.
15. After review by the Scientific Committee, accepted abstracts will be included in the Congress Proceedings and on the IPS website/intranet.
16. Authors consent that their selected full papers presented may be published in a special issue of the journal, Mires and Peat, if invited.
17. Authors will be informed when such publication becomes available. Participants are also encouraged to explore alternative publication options for papers and/or posters presented in their sessions.

Mandatory Registration

1. Please note that the acceptance of an abstract without the submitting author registering as a participant will not entitle the abstract to be included in the Congress Programme or Proceedings.
2. Registration, accommodation, healthcare, VISA, travel, etc. remain at author's own cost and responsibility.

Key Dates

1. Invitation call for abstracts:
15th September, 2015
2. Closing call for abstracts:
30th November, 2015
3. Notification of paper acceptance/rejection:
30th December, 2015
4. Extended abstract submission deadline:
15th February, 2016

Decision

1. Authors will receive an e-mail informing the final decision through their registered e-mail address (as per login).
2. No correspondence will be entertained on decisions.

Line Rochefort from
Université Laval examines a
piece of vegetation in a rich
fen near Elma, Manitoba.
All photos: Ducks Unlimited
Canada



Common Ground

Partnership conserves Canada's boreal peatlands

Ducks Unlimited Canada (DUC) and the Canadian Sphagnum Peat Moss Association (CSPMA) are teaming up to make sure peatlands in the nation's boreal forest are around for future generations. Home to one third of the world's peatlands, the boreal region offers an opportunity to prove they can be managed responsibly.

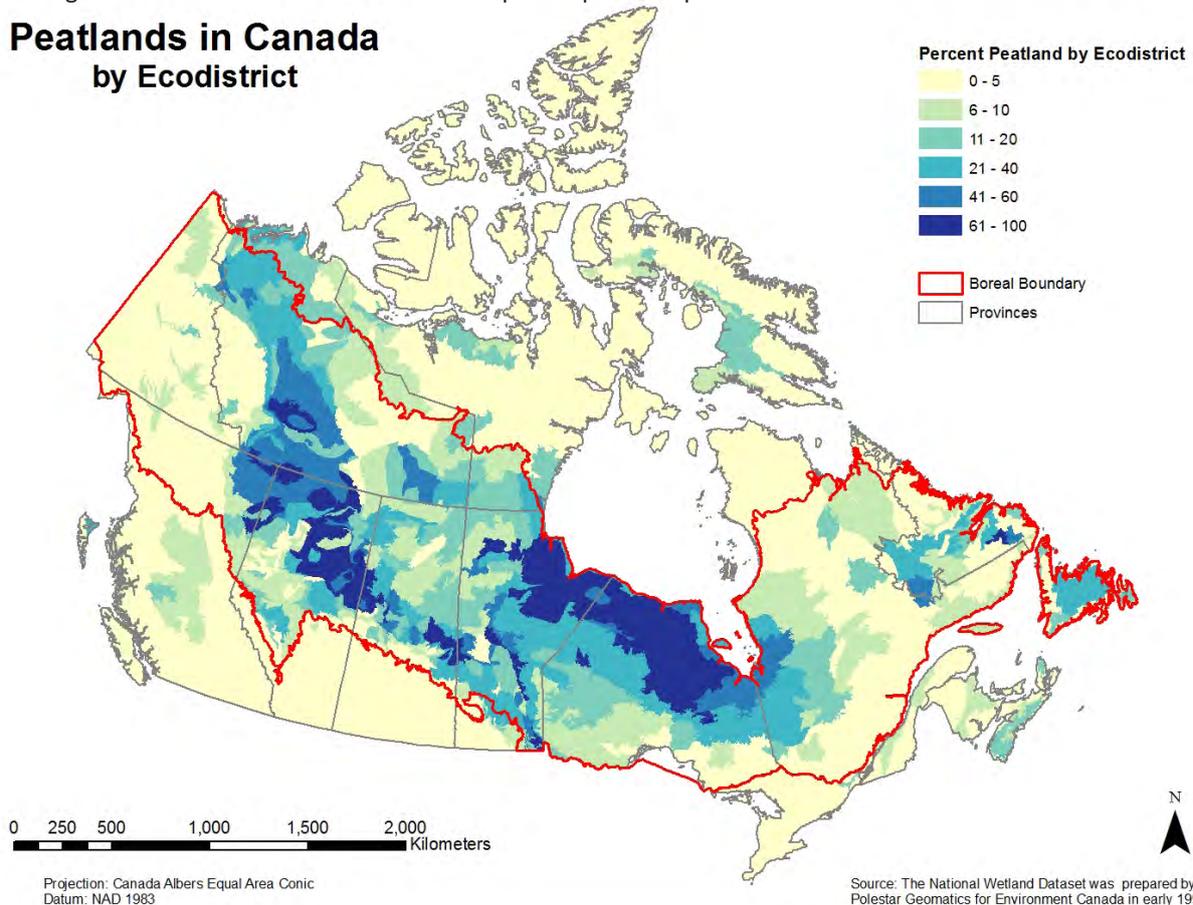
Canada's boreal forest covers an area 1.5 times larger than the European Union – a landscape defined by water. Dominated by peatlands, an immense network of bogs and fens stretches across the country from the Yukon to Newfoundland. It provides critical ecosystem services to humans and crucial habitat to wildlife. It purifies water and moderates floods. It sustains about 15 million waterfowl and species

at risk such as the threatened woodland caribou. And it stores 137 billion tonnes of carbon, nearly 18 years' worth of global CO₂ emissions.

That's why we have partnered to invest in studying these ecosystems and working toward developing best practices to support their responsible management. In 2014, we signed a memorandum of understanding to share research and knowledge about responsible peatland use. We also agreed to work together to raise the profile and awareness of the nation's valuable peatlands. It's a relationship born out of our common vision for sustainable development through responsible management in the boreal, and a shared need to better understand peatland ecosystems.

Percentage of the Canadian boreal forest landscape comprised of peatlands.

Peatlands in Canada by Ecodistrict



Research

Supporting research into the fate of peatlands after they've been harvested is a first step. This summer, scientists from DUC and the Peatland Ecology Research Group (Université Laval, University of Waterloo and Brandon University) will be taking a look at the carbon fluxes of peatlands which have recently been closed after peat production and which are characterized by residual minerotrophic (fen) peat.

They'll study if rewetting and fertilization is enough to bring back plants that help set the course for a functioning peatland ecosystem. Researchers will learn about peatlands' ability to function as a carbon sink and look into the way these techniques contribute to the global carbon balance. The goal is to establish these peatlands on a path back to their natural state.

In Manitoba, the research will also look at the quality and quantity of water that flows off the harvested sites and the surrounding peatlands.

Water quality in the Lake Winnipeg watershed, where the research sites are currently located, has become a topic of increasing interest.

Policy

With a shared vision for peatlands in the country, we will also work together to advance the conservation and management of peatlands by advocating for changes in public policy. A recent example is the work undertaken to support the Manitoba Peatland Stewardship and Amendments Act and associated strategy. The province passed this first-of-its-kind legislation in 2014, which calls for integrated environmental protection, responsible peatland harvesting and recovery, and the recognition of peatlands as a biological resource.

Conservation and administration of peatlands management now resides within the Forestry and Peatlands Management Branch rather than the Department of Mineral Resources.



When it comes to growth, we focus on our responsibility

We don't ourselves set the standards we are measured by. Our benchmark is sustainability across all of the company's activities. At Klasmann-Deilmann, we integrate economy, ecology and social action into a holistic strategy.



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ISO 14064



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In Quebec and Ontario, we will assist the province in identifying wetlands in the boreal forest for protection under the framework Plan Nord and Far North Act.

Best Management Practices

Developing and implementing best management practices (BMPs) for peat harvesting and the restoration of peatlands is a key component of the partnership. Some of these recommendations will emerge out of the research that occurs in the first few years. Others will come from past research and expert knowledge gained from workshops and field tours between DUC and the peat industry.

Partnerships between DUC and industry groups have produced BMP guides for working in the region that are available at <http://bit.ly/1Ea4KsS>. DUC is exploring the best ways to share BMPs online and will work with the peat industry to consider their needs.

Knowledge exchange and training on the best available methods will be crucial to our goals

Line Rochefort from Université Laval and Pascal Badiou with Ducks Unlimited Canada examine vegetation in a harvested peatland near Elma, Manitoba.



Maria Strack from the University of Waterloo squeezes water out of sphagnum moss to test its pH in a rich fen near Elma, Manitoba.

in the boreal forest. This partnership brings together a leader in wetland conservation and key players in the industry who are committed to the responsible management of peatlands. Our common sustainable development goals make us the perfect allies to ensure Canada's peatlands thrive today and tomorrow.

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Sisal Geotextiles For Peatland Restoration

Peat is water and carbon. If you take the water out, the carbon goes up into the air". I think that was my favourite quote from the day I spent at "Peatlands – A New Conversation" in Tullamore, Ireland. Marcel Silvius of Wetlands International summarised rather beautifully one of main issues affecting peatland. And we are not talking about small amounts of carbon. Silvius went on to point out that peatlands are the world's main carbon store.

I'm from Scotland, but only recently found out that 20% of Scotland's land area is peatland! More than half of this area, around a million hectares, is now in poor condition. Thankfully the Scottish Government have made it a priority to improve these peatlands, this week releasing another £3M of funding (to be claimed within the next two months).



Sisal fibre woven into geotextile fabric.
Photo: Hebron Mwakalonge



John Ferguson with sisal plants in Tanzania.
Photo: Hebron Mwakalonge

But while funding is available, the challenge is that this work is in its infancy and many organisations have not found suitable materials or methods to use. In terms of slowing down water seepage out of peatlands (to raise the water table), plastic piles or sheets are currently being used as a quick fix. However plastic is carbon intensive to manufacture and not biodegradable. Questions are also being asked about the appropriateness of putting plastic into the ground in remote and beautiful locations.

My start-up business, The East Africa Sisal Company, has come up with one solution. We produce tubes, or socks, made from sisal, a very durable and highly sustainable fibre crop grown in Tanzania. These tubes can then be filled on site with loose peat and fixed in place to form a highly effective dam. Even in the extremes of Shetland, we are getting very positive customer feedback: "In some places we have tried 2 sisal tubes about 0.7m apart and back fill in between with peat and plant plugs of bog vegetation on top of the infilled bit. This makes a fantastic dam." Sue White, Shetland Amenity Trust.

Sisal fibre sun drying in Tanzania. Photo: John Ferguson



So a little more about sisal itself. Sisal has been grown in Tanzania for over a hundred years. It was originally used for making ship's ropes due to its strength and natural resistance to saltwater. It was also used for making strong sacks. However when the plastics industry came along, ropes and sacks started to be made from polypropylene and production dropped from 200,000t/year to 10,000t/year. With the recent renewed interest in natural fibres it has started to make a bit of a comeback, with production now at around 20,000t/year.

Oxfam are currently promoting the growing of sisal as a way to help small-scale farmers cope with the impact of climate change. Sisal plants have an extremely low water requirement, allowing them to survive droughts that kill other crops. However the farmers still need to find a market for their sisal fibre and we hope to be part of that solution.

We aim to be an ethical business, from the sourcing of sustainable fibre, to the substitution of plastic products, to encouraging the restoration of peatlands for increased carbon dioxide absorption.

The East Africa Sisal Company is a small and innovative company and we are able to make our sisal geotextiles in whatever dimensions or format you might require. If you have an idea or any questions don't hesitate to get in touch.

John Ferguson

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Sisal dams deployed in Shetland. Photo: Sue White

Spotlight on *Molinia caerulea* in the English and Welsh Uplands

This grass can become widespread and tussocky to the exclusion of the expected plant communities on deep and shallow peat in the uplands and lowlands of the British Isles. In this instance the spotlight was on uplands expected to have a cover of *Eriophorum* species, ericaceous shrubs and Sphagnum mosses. Over 100 delegates from across the UK and Ireland

met in Huddersfield Town Hall 14-16 September 2015 to discuss its place in this ecological niche and, where appropriate, how the balance of plant cover might be shifted back to those favoured by conservation bodies.

The natural place of *Molinia caerulea* in many National Vegetation Classification plant

Michael Pilkington of Moors for the Future demonstrates the water table monitoring apparatus on plots in which the *Molinia* has been managed in various ways and Sphagnum propagules have been introduced. Photo: Roger Meade



A high proportion of those attending the conference also went on the field excursion, grouped here on the edge of Burne Moss, near Huddersfield. Photo: Andrew Underdown



communities was described by Roger Meade. Professor Simon Caporn described the possible role of deposited nitrogen and ozone on the balance between the Purple Moor-grass and other species and how this could be a negative force in any efforts to decrease its dominance. Professor Robert Marrs gave an account of experiments using herbicides to control it in the Peak District hills and how the ideal was a mix of approaches including hydrological repair, herbicides, cutting and grazing.

Land managers from Natural Resources Wales, Natural England and the National Trust gave presentations on their experiences with *Molinia* control and the success of hydrological manipulations on lowland bogs. Peter Jepson cited examples where tussocky *Molinia* coexists with a carpet of *Sphagnum* species in the west Pennines and that this may be a natural state in some circumstances. Most were agreed that the availability and wise use of grazing animals is the key to the future and that this has implications for designing ideal European Union and UK agricultural support policies.

A field excursion to part of the National Trust's Marsden Moor Estate, which has a very large area of *Molinia*-dominated peatland, included *Molinia* grassland experimentally cut back several years ago and another where Moors for the Future has carried out various cutting and tussock removal treatments in combination with the addition of

Sphagnum moss species as either fragments in gel beads, the same in gelatinous suspension or as plugs made up of small bundles of intact *Sphagnum* stems. The experiment was explained by Michael Pilkington of Moors for the Future and Neal Wright of Micropropagation Services.

The event was organised by staff and volunteers of the National Trust at Marsden Moor and supported financially by Natural England and the UK group of the IPS. The presentations and discussions will be available on the National Trust website in a few weeks.

Roger Meade

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Advertisement



Baltic Peat Producers' Forum 2015

A cosy gathering under a turbulent theme

One can hardly think of a better place than the tranquil Kuressaare, a spa town in coastal Estonia, to concentrate on the seminar theme “The Peat Industry in Turbulence of Politics and Economy”. Some 200 participants, representing 10 countries, added their own flavour to the rich blend of various interesting topics on the programme: www.bppf2015.eu/#!schedule/cjg9.

Starting from the first presentation, “Peat, Europe, Alternatives, Trends” by Gerald Schmilewski, to the final case studies of the Baltics, the seminar’s theme was fully realized. Presentations on the

potential impact of climate change on peat production, the progress and implementation



Erki Niitlaan. Photo: BPPF



The Saikla - Angla - Tuulikumägi -excursion brought us into the heart of Saaremaa Island. Photo: Hannu Salo



During the Forum Dinner. Photo: Hannu Salo

phase of the RPP certification system, peat as a means of achieving national growth, cooperation in energy peat, and the environmental challenges of the industry created a firm basis for lively discussion. The role of the enterprises promoting the event was prominent but well balanced, in both the programme and at their stands outside the auditorium.

The mid-September weather was favourable for the short-distance walks between the hotels, the restaurants and the venue: the Kuressaare Cultural Centre. The Wednesday afternoon excursions to four interesting destinations, combining both professional and touristic aspects, also provided excellent opportunities for socializing and the sharing of ideas.

Hannu Salo

IPS Secretary General
hannu.salo@peatlands.org



Saikla's peat is exported mostly to the Netherlands for tulip bulb storing. Photo: Hannu Salo



Excursion to Saikla Peat. Photo: Hannu Salo



Kalev Kallemets. Photo: BPPF

GROWTH & JOBS
 Priorities of current government of Estonian Republic

1. Improve wellbeing of families with children
2. Enhance environment to increase birth rate
3. Increase Estonian security
4. Improve welfare of low income workers
5. Stimulate economic growth

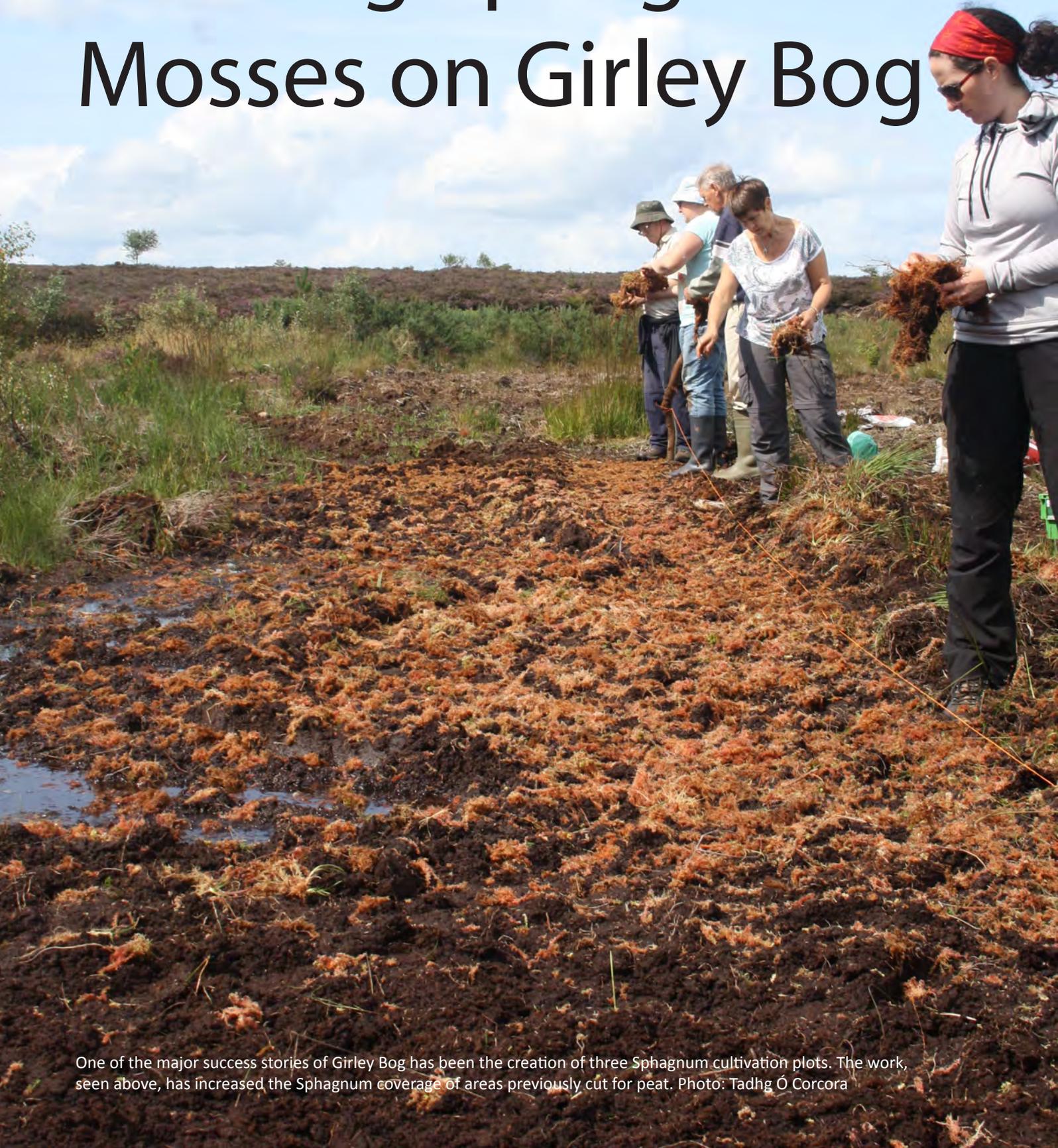
... of state and municipal government
 ... of weakening of rural areas
 ... to do with economic growth
 ... allinn. Point 6 includes refo



Concert at the Gala Dinner. Photo: Hannu Salo

Allan Robertson Grant 2015 (1/5)

Restoration of Peat Forming Sphagnum Mosses on Girley Bog



One of the major success stories of Girley Bog has been the creation of three Sphagnum cultivation plots. The work, seen above, has increased the Sphagnum coverage of areas previously cut for peat. Photo: Tadhg Ó Corcora

The Irish Peatland Conservation Council or

IPCC were delighted this year when Conservation Officer Tadhg Ó Corcora was awarded the International Peatland Society Allan Robertson Grant to carry out the Sphagnum moss transfer technique on a part of Girley Bog, Co. Meath, Ireland.

Girley Bog NHA Meath in County Ireland is one of Ireland's most easterly examples of raised bog habitat. Photo: Tadhg Ó Corcora



The IPCC are an environmental NGO with a mission of conserving a representative portion of Irish bog for future generations to enjoy. One part of their multi-faceted approach to this is through site purchase and restoration and this is the case with Girley Bog.

In 2013 the IPCC purchased 8.6 hectares of Girley Bog. This is a raised bog and part of the Natural Heritage Area network set up to conserve peatlands and to meet Ireland's obligations under the EU Habitats Directive. The piece purchased by the IPCC was the single remaining plot where turf was being harvested and the purchase allowed for this to be countered and for the entire bog to begin moving towards restoration.

Great strides have been made in this regard, principally through the creation of a 'Girley Bog Meitheal', a team of landowners and stakeholders who are working together to achieve favourable conservation status for Girley Bog and to preserve the site into the future.

This year IPCC's main focus was to restore parts of the site which had been damaged by turf cutting in the past. This would have been on a small scale with cutting and hand drying of turf being carried out annually by one individual. What remained was a damaged area, sparsely vegetated in parts with bare peat regularly exposed.

The key measure in raised bog restoration is the blocking of drains and over the last 2 years IPCC have completed our programme of drain blocking

on Girley Bog. This has seen a significant increase in the water table on the site and in many areas has returned the conditions required for active Sphagnum moss growth.

In a functioning bog system Sphagnum mosses have certain special characteristics, which enable them to control their environment by retaining waterlogged conditions and acidifying it to a point where the rate of decomposition is severely inhibited. Sphagnum mosses are therefore critical

Tadhg Ó Corcora, a recipient of the Allan Robertson Grant 2015, carries plastic lumbar used to block drains on Girley Bog. Photo: Katie Geraghty





IPCC staff and volunteers inoculating one of the Sphagnum transfer areas with moss.
Photo: Tadhg Ó Corcora

physical and chemical conditions of the peat and the lowered water table level. Bare peat surfaces dry out and become oxidized in summer leading to increased levels of decomposition, which means little or no peat accumulation or regeneration occurs. This is a hostile environment for plant recolonisation.

for the formation and sustainability of raised bog habitat. However as a result of peatland exploitation the range and abundance of the plant are continually diminishing. In Ireland there are large areas of bare peat in many of our bog systems as a result of drainage and use for fuel extraction. The study area on Girley Bog is a great example of this.

Re-colonisation of the surfaces left behind by typical bogland vegetation is very slow due to factors such as lack of spore source, the altered

For this reason and with the help of the Allan Robertson grant IPCC decided to give the site a helping hand. Using the methods of Quinty & Rochefort (2003) we have carried out the Sphagnum transfer process in three areas of cutover bog on Girley Bog. These have been placed in carefully selected areas dependant on water table which was measured with piezometers for a number of months prior to moss transfer.

The process began with the hosting of volunteer work camps to encourage volunteers to come

out and help IPCC to conserve Girley bog and to educate people on why and how we carry out the Sphagnum transfer process.

Successful re-colonisation of the Sphagnum layer should allow for other bogland species such as the flowering plants, lichens and carnivorous plants to return to the ecosystem. Once the team was ready we carried out a number of field days where the process

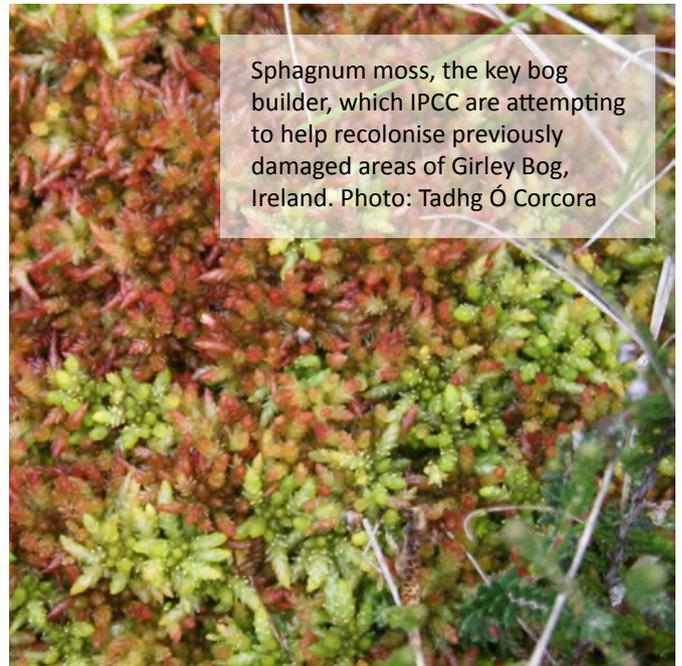
One of the completed Sphagnum transfer locations on Girley Bog in 2015. Photo: Tadhg Ó Corcora



was completed on three different sites across the cutover portion of the bog. Donor plants were harvested from healthy sites nearby and these plots are being monitored into the future to evaluate regeneration. Work that the IPCC have carried out on our Kildare raised bog site, Lodge Bog, since 2009 indicate that donor plots will show successful regeneration within 3-4 years.

The work carried out with the aid of the Allan Robertson Grant was showcased on two occasions already this year. On the 26th June the IPCC took part in the Kells Hay Festival which featured a guided tour of the bog, where the group stopped off to meet with Tadhg for a discussion on the IPCC management of the bog, with one of our transfer sites garnering widespread interest. The work was also showcased during Heritage Week, where again large numbers visited the site for an information walk and talk.

While it is early days yet the areas seem to be taking well, with water levels steady after a brief worry when Ireland went through a surprisingly dry weather period. It will be a number of years before we can be certain but the work appears to have been successful and we hope it will lead to greater amount of colonisation of the degraded area of the site with not only Sphagnum mosses but of all the classic raised bog species, returning



Sphagnum moss, the key bog builder, which IPCC are attempting to help recolonise previously damaged areas of Girley Bog, Ireland. Photo: Tadhg Ó Corcora

this area to similar to what it would once have been.

Tadhg Ó Corcora

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+353 45 860 133
bogs@ipcc.ie, www.ipcc.ie

IPCC Conservation Officer, Tadhg Ó Corcora talks to a group on the bog during Heritage Week about the Sphagnum transfer technique. Photo: Kate Flood



Ismo Karhu,
Environmental
Manager,
Jouko Arvola,
PhD (Tech),
and Tuomas
Kallio, Expert
on Natural
Resources,
from the
Council of the
Oulu Region, at
the publication
seminar of the
report in Oulu
on the 31st of
August 2015.



Finland's richest region in peat resources to boost new peat-based R&D

The Oulu Region in northern Finland is well known for its high-tech industry, its university, and its modern architecture and atmosphere. The region can also boast that more than half of its total land area is covered by peatlands. The Regional Plan and the Bioeconomy Development Strategy have identified these vast peatland resources as having great potential for further development and new efficient uses of natural resources in the bioeconomy.

The Council of the Oulu Region has just concluded a feasibility study entitled "The potential of peat refining", compiled by Jouko Arvola, PhD (Tech). The report can be downloaded in Finnish from www.pohjois-pohjanmaa.fi/file.php?3667.

The report contains an assessment of the possibilities of using peat in high-value-added products, such as chemicals, composite materials and fuels. It examines the interests of the Oulu University in increasing their research on peat chemistry, the potential of renewable utilization of Sphagnum moss and the chemical compound deposits of peat in various applications.

The report was compiled in close cooperation with enterprises, researchers and other stakeholders. Any form of further processing of peat should meet the demands of economic viability and attaining higher value-added levels; it should be allocated to peatlands of low biodiversity value and have as little negative environmental impact as possible.



The Regional Council approved funding for a project proposal by Oulu University, called "The Use of Peat and Peatland Biomass in High Value Added Products", on the 21st September. The project is co-funded by the EU Regional Development Funds and will produce additional materials in English.

According to the project description, peat and biomass from peatlands may cater to the need for raw materials in the manufacturing of resource-efficient packages and filters. All of the new functional micro- and nanoparticles from peat can be used in composites or water-purifying chemicals. However, before the innovative new applications can be fully developed, more specific knowledge and understanding of the physical and chemical properties of different types of peat must be available. After three years, the research results

are expected to enable new economic activity based on the region's large peat reserves: in particular, the better utilization of the upper layers of peat deposits in the region.

From the academic and IPS points of view, there are obviously many linkages to various commissions, from chemical characteristics and after-use issues, to industrial use and social aspects. By enhancing the sustainable availability of Sphagnum moss, the project is also worth following from a commercial point of view.

Hannu Salo

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Professor Sari Tuomikoski from Oulu University, presenting the Bioeconomy Research Community.



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In memoriam:

Jaroslav Ferda 1925-2015

Jaroslav Ferda was born on 2 June, 1925, at Trnovec nad Váhom, Slovakia. He successfully completed his studies at the Faculty of Forestry Engineering at the Czech Technical University, Prague in 1948.

He started his professional career at the Ministry of Agriculture but moved into the field of research already in 1952. His employer was the Agricultural Amelioration Department of the Forestry and Game Management Research Institute (*Výzkumný ústav lesního hospodářství*), which, in 1954, became a part of the newly established Research Institute of Agricultural and Forestry Farming Amelioration (*Výzkumný ústav zemědělsko-lesnických meliorací CSAZV*).

Jaroslav Ferda was one of the first people to study the after-use alternatives for abandoned peat harvesting sites. As early as in the Transactions of the Second International Peat Congress in Leningrad, USSR, 1963, Ferda published scientific results concerning different site preparation methods for improving soil properties for farming and afforestation on former peat harvesting sites. Later, hydrologic properties, like optimum groundwater level for tree stand establishment on peat soil, were included into the research questions. We can say that such studies show that he was clearly ahead of his time.

He also worked as a coordinator of the topographic survey of peat deposits over the whole territory of CSSR. This work was accomplished in 1970.

In 1981-1987, his expertise was used in the International Peat Society as a council member. He was an active member in the Commission III 'Bog Cultivation and Afforestation', which was renamed 'Peatland Agriculture and Forestry' in 1985. Jaroslav Ferda was also a member of the working group of IUFRO (International Union



Photo: private

of Forest Research Organizations), the principal task of which was to explain the environmental effects of forest drainage.

During Jaroslav Ferda's active years, IPS formed a bridge that helped scientific co-operation across the 'iron curtain', separating eastern European countries from the rest of the world.

Jaroslav Ferda passed away after a short illness at the age of 90 in July 2015.

Personally, I remember Jaroslav as a warm-hearted gentleman who not only acquainted me with research and professional issues but also the Czech culture in Prague and in the 'deep country-side' including research areas and local pubs with extra original beer.

Juhani Päivänen

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Fen peatlands

The second workshop in Poland

The 2nd international workshop on fen peatlands, organized by Commission III of the IPS and other contributors, took place in Olsztyn, Poland. It commenced on Monday 6th July and ended on Friday 10th July 2015. The workshop, entitled “Fen peatlands after drainage – landscape and soil”, was devoted to the classification of peat and gyttja formations, and their location in the landscape, especially young glacial landscapes.

The 23 attendants came to Olsztyn to participate in the lectures, laboratory classes and field studies. The guests represented the University of Warmia and Mazury in Olsztyn; Warsaw University of Life Sciences; Poznan University of Life Sciences; Nicolaus Copernicus University in

Toruń; Jagiellonian University; Wrocław University of Environmental and Life Sciences; the Institute of Soil Science and Plant Cultivation, State Research Institute; the Ministry of Agriculture and Rural Development; and Hollas Sp. z o.o. The final day of the workshop was linked to the 2015 International Year of Soils, during which poster presentations were made and the discussion was focused on organic soils.

Professor Krzysztof Młynarczyk, the Dean of the Faculty of Environmental Management and Agriculture at the University of Warmia and Mazury in Olsztyn, opened the workshop with a presentation about his Faculty. Professor Andrzej Lachacz gave a presentation on “the classification of organic soils – a Polish perspective”. Dr Barbara



Workshop participants. All photos: Barbara Kalisz



Kalisz briefly described the Łyna River valley, and Dr Paweł Sowiński gave a description of polder Posorty, located in the Łyna River valley, where the field measurements took place. Professor Ryszard Oleszczuk gave two presentations: “The role of sub-irrigation infrastructure in drained peat-moorsh soils” and “Geometry and discharge flow changes of lowland Mała river part, based on projected assumptions (1967)”.

Dr Glina presented the results of a study on “The effect of the long-term drainage of peatlands on the transformation of organic and organo-mineral soils: a case study from the Stołowe Mountains, SW Poland”.

Dr Jacek Niedzwiecki gave a presentation on “the evaluation of C pools in organic soils under permanent grasslands in Poland – methodological issues”. Dr Smólczyński gave a lecture about organic soils in Żuławy Wiślane.

During field measurements, the participants discussed peat, moorsh and peat-underlying deposits (gyttjas), their classification

and decomposition. Special interest was paid to gyttja deposits. Gyttja is a freshwater deposit consisting of organic and mineral matter (dead phytoplankton, zooplankton and other constituents), found at the bottom or near the shores of lakes (Lachacz et al., 2009).

The term was originally defined by the Swedish scientist H. von Post in 1862, as a light-coloured coprogenic deposit, consisting of a mixture of plankton particles, mollusc shells, chitin remains from the exoskeletons of insects, pollen and spores of higher plants, and mineral particles,

Field measurements and discussion.





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formed in eutrophic water bodies (Myślińska, 2001). The term “gyttja” (meaning “slime” in Swedish), proposed by von Post, is currently used in international classification systems (Lachacz et al., 2009). Gyttja deposits in young glacial landscape may occur on the surface or under peat deposits.

In the laboratory, the participants had the opportunity to continue discussing peat decomposition, and experimented with determining the degree of peat decomposition using four methods: von Post’s well-known method (von Post, 1922); a standard method for establishing a pyrophosphate-soluble organic matter index for organic soils, using a Munsell colour chart (Anonymous 1974 a,b), a standard method for unrubbed fibre content determination (Anonymous 1974b), a standard method for rubbed fibre content determination (Anonymous 1974b).

During the field trip, the participants visited the Gazwa gyttjaland and reclaimed bog peatlands, belonging to Hollas Sp. z o.o., which is a company belonging to the Peltracom group, with four production facilities in Poland. Its activity comprises the production of peat products.

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Undersöknings torvinventering och några av dess hittills vunna resultat. Sv. mosskulturföreningens tidskr. 37: 1-27.

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Leivonmäki, Kuusa, Pyhä-Häkki & More...

The Finnish Peatland Society in Central Finland

For a long time, the IPS staff and employees of Vapo Oy have spoken about inviting the members of the Finnish Peatland Society (Suoseura) to Central Finland - an area of lakes, hills and, of course, numerous peatlands. This day finally came on 17 - 18 August, on the occasion of Suoseura's 65th birthday. About 35 participants, mainly from the capital region and Jyväskylä, decided to get to know our mires and peat production areas during a two-day trip, which took place just at the end of the summer.

The group met at Jyväskylä station, collected the last of the equipment and cheerful members, and headed off to Pyhä-Häkki National Park, near Saarijärvi. The scientists and company

representatives were led responsibly by Juha Ovaskainen of Vapo Oy and Tuomas Haapalehto of Metsähallitus, who impressed everyone with their knowledge and friendly care. At our destination, we had the chance to follow a short nature trail through old forests and the beautiful Riihineva mire, which was still damp in the morning sun. The guests enjoyed the walk but also had food for thought, as the ranger explained the challenges surrounding the management of the National Park and the decline in spotting the area's birds and rare mammals.

Afterwards, we visited several forest sites where peatland is being restored by blocking ditches, in different stages of development over decades. For



Rewetting of forested peatlands.
All photos: Susann Warnecke



Afforestation of peat production site.



Nature trail on a pristine mire.

The participants of the excursion.



more information, maps and photographs, you can visit www.nationalparks.fi/pyha-hakki. The evening ended with a delicious dinner at Varjolan Tila in Kuusa, followed by a smoke sauna and swim in the cool lake water for the exhausted travellers.

During the second day of the excursion, we went South to Leivonmäki National Park. This area is especially interesting because the nature conservation and peat production areas are relatively close but, due to hydrological conditions, they do not heavily influence each other. The hiking paths in the forests, on eskers and within the vast peatlands are a source of recreation for the inhabitants of Jyväskylä. Combined with wood and supplemented by coal, the peat that is produced is a source of heating and energy for the relatively nearby city. In Leivonmäki, we took a short walk around Kirveslampi. We enjoyed the view from the new bird watching tower and were instructed by the locals on tourism in the park.

In the afternoon, we were treated to lax soup in a wooden shed. After that, we visited Vapo's peat extraction fields in Haapasuo. Of course, the equipment and techniques were of interest but the afforestation and rewetting projects also looked very promising. As the last destination, the group took a walk to the newly established



Jokipolvensuo restoration site.

wetlands, wooden huts and a bird watching tower. We are curiously waiting to see how the sites will develop over the next few years, not only for the birds and waterfowl but also, for the local hikers and others who want to spend a day in the wild. For more data on Leivonmäki see www.nationalparks.fi/leivonmaki and www.vapo.fi/producing-peat-responsibly/after-use.

We warmly welcome you to join Suoseura and its next excursions, www.suoseura.fi.

Susann Warnecke

IPS Communications Manager
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Yorkshire Wildlife Trust UAV Mapping

Based on our experience in the application of geospatial technology in the fields of ecology and conservation the Yorkshire Wildlife Trust is now offering a low-cost aerial mapping service for the collection of ultra-high resolution aerial imagery and 3D terrain models.

We have been using Unmanned Aerial Vehicles (UAVs) for a number of years now to survey peat bogs throughout the Yorkshire Dales National Park. During this time we have developed a whole range of methodologies in order to analyse data collected using UAV technology to accurately map degraded peat bogs in more detail than we previously could before.

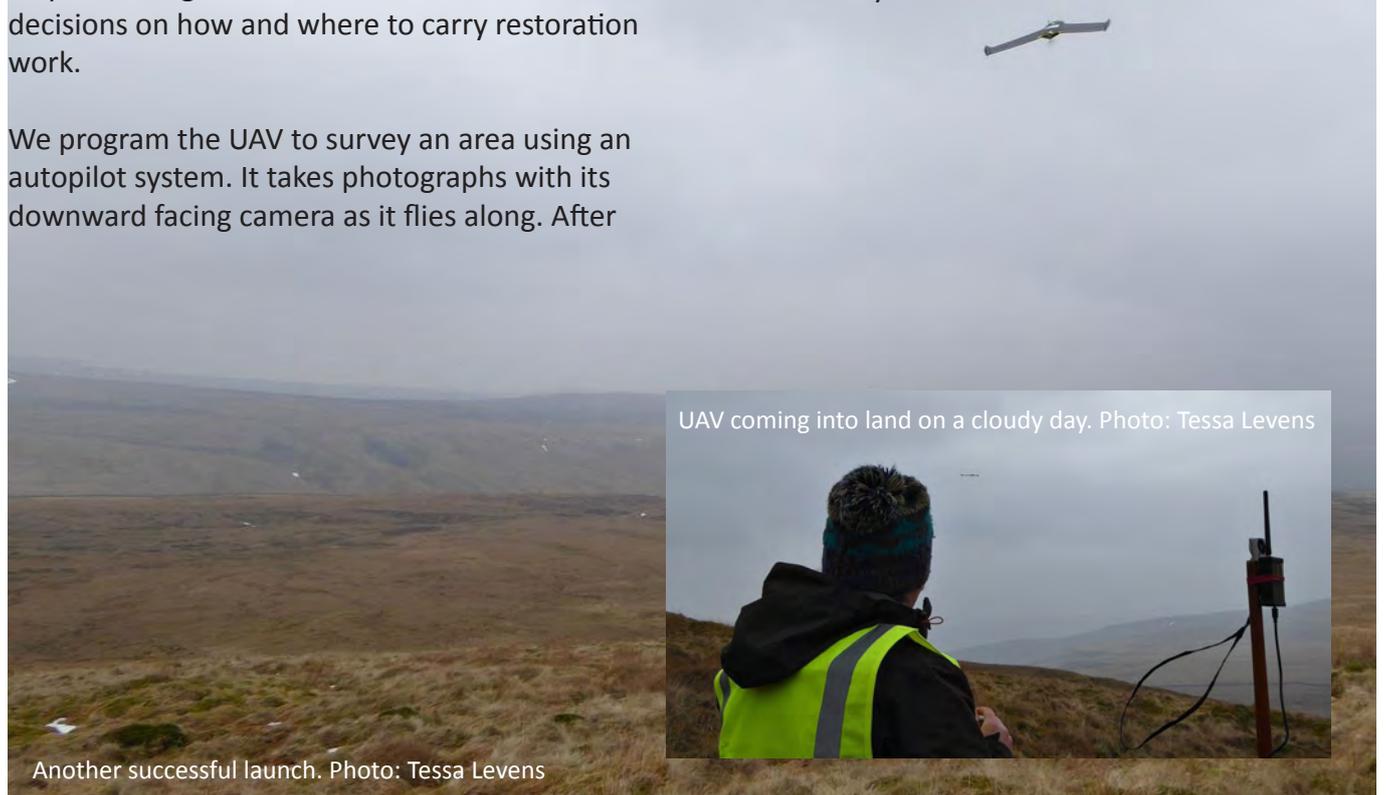
By helping us to understand and quantify erosion the information generated from these surveys help us to target resources and make informed decisions on how and where to carry restoration work.

We program the UAV to survey an area using an autopilot system. It takes photographs with its downward facing camera as it flies along. After

a survey the imagery is downloaded and taken back to the office where it is processed using specialist software. Using advanced techniques in photogrammetry and computer vision we can not only stitch all the images together into a geo-referenced orthophoto but also generate a 3D topographic terrain model.

With a level of detail far in excess of that available through commercially available LIDAR or aerial imagery we can produce datasets of up to 1cm resolution for a fraction of the cost.

The true power of these datasets are unleashed when imported into GIS/Remote Sensing software. Peat bog erosion features can be mapped automatically in far greater detail than previously possible. Work that would have previously taken weeks to digitize by hand can be completed in a matter of days.



UAV coming into land on a cloudy day. Photo: Tessa Levens

Another successful launch. Photo: Tessa Levens

As well as the automated mapping of exposed peat using image classification techniques we can also model the flow of water through complex dendritic gully systems. This was impossible with previous datasets.

This helps us to determine where best to block gully features. We use a series of wooden dams to trap sediment, slow down surface run off and raise the water table to more favourable conditions.

By using a Digital Surface Model (DSM) we can start an assessment of the landscape topography. Dimensions of gullies can be accurately determined using a series of cross sections profiles.

By combining the data collected using the UAV with field based measurements of peat depth we can start to build up a picture of what is beneath the ground.

Using the data in this way we can generate a model of subsurface peat reserves. This can give us an estimate of the total subsurface volume of peat at a restoration site.

Further to this we can generate photorealistic models of peat bog habitats in order to visualise and view the landscape from every possible angle.

Recent advances in online mapping allows anyone to view large datasets in their web browser. The link below opens an online map of a survey we carried at a peat slide that occurred after an extreme storm event. <http://tinyurl.com/q2yw2sj>

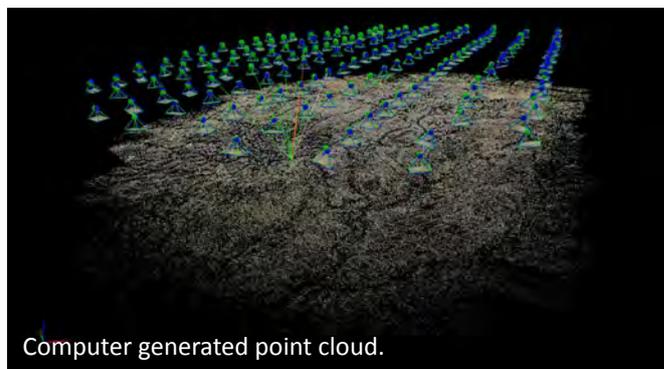
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Our pilots are fully qualified UAV operators and we have permission to carry out aerial work from the UK Civil Aviation Authority (CAA).

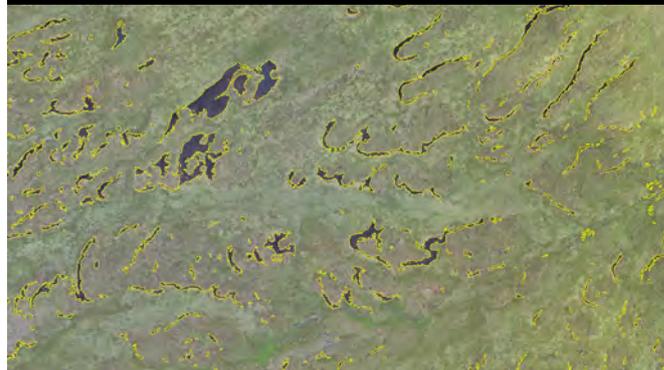
For further information please contact our Geospatial Officer:

Mark Brown

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mark.brown@ywt.org.uk



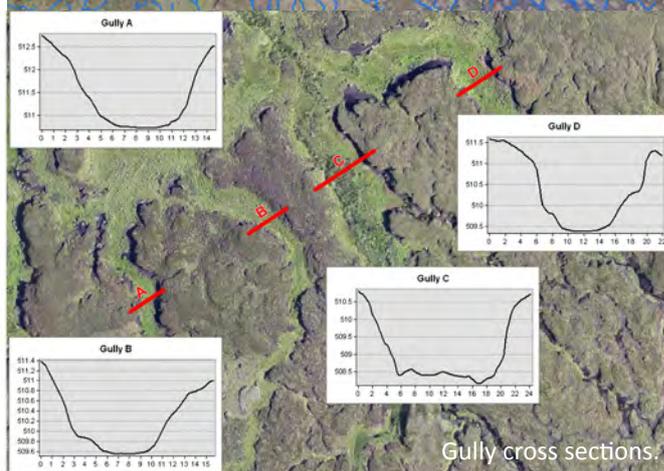
Computer generated point cloud.



Automated classification of exposed peat.



Modelling the flow of water through a complex dendritic gully system.



Gully cross sections.



Photorealistic 3D model of peat bog habitat. All graphics on this page copyright Mark Brown

The Fourth Finnish Peat Soccer Cup – first win for a team from abroad

Unlike the Swamp Soccer World Championships, which are played on undrained peatland (<http://suopotkupallo.fi/in-english>), peat soccer is played on a peat extraction field. The game began as a very small event in Western Finland, involving only a few neighbouring peat producers, back in 2011. The enthusiasm and interest shown towards playing on a soft but controllable peat ground (and without harming the untouched peatlands) grew rapidly, and this year's cup attracted 10 teams and more than 100 players to the Tahko area in Eastern Finland, at the end of August.

One of the great advantages of peat soccer is that, when the game is played on a site still under

peat extraction, an infrastructure already exist to serve players, as well as to adjust the conditions of the field. A good road network and electricity supply are in place, as well as the machinery and tools to shape and maintain the desirable playing conditions. One or two days of intensive soccer playing can easily be fitted into the extraction cycle at the end of the peat harvesting season. The spectators enjoy better views and easier access, too.

Many stakeholders and environmentalists have also praised this form of peat field utilization; it doesn't involve entering any untouched natural environment, and the environmental impacts can be controlled and limited to a minimum, even in the case of much larger games.

A peat soccer field is much smaller than an ordinary football field. The playing technique and tactics are also different - light-weight fast females usually rule over the sturdy built male players. All photos: Hannu Salo





Finnish peat soccer cup 2015 winners, the Belarusian team.

This year's cup games were played at the Kaijansuo peat extraction field, operated by the Kuopio City Energy Company Ltd, close to the holiday resort of Tahko. The Cup Prize - an engraved peat hoe - went to the successful Belarusian team. According to the rules, the winning team will be in charge of organizing the next tournament.

The captain of the Belarusian team, Valery Kovalev, took up this challenge with pleasure and promised to arrange a fantastic peat soccer cup for next year, open to as many international teams as necessary.

Are you interested in taking part? There will be more information on the upcoming event in Belarus, available in early spring 2016. You can also contact the IPS Secretariat, Secretary General Hannu Salo, for further details.

Hannu Salo

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Valery Kovalev giving his thank-you speech.



Peat soccer playing is often combining sports with a peat bath.



Full combat.

Peat and peatland events

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Bad Zwischenahn, Germany
15 October 2015
www.ivg.org

Remote Sensing of Wetlands Symposium
Seville, Spain
23 October 2015
<http://ocs.ebd.csic.es/index.php/RSW/RSCW2015/schedConf/overview>

Finnish Peat Day
Tampere, Finland
26 October 2015
www.bioenergia.fi/turvepaiva

Flow Country Conference
Thurso, United Kingdom
27 - 30 October 2015
www.eri.ac.uk/eri/eri_aca/projectdetails.aspx?ind=24

Geological Society Of America (GSA)
Annual Meeting
Baltimore, Maryland, USA
1 - 4 November 2015
www.geosociety.org/meetings

Convention on Biological Diversity
Montreal, Canada
2 - 5 November 2015
www.cbd.int

Peatland restoration seminar
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www.rovaniemiprocess.fi/en/invitation

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30 November - 11 December 2015
www.cop21.gouv.fr/en

First Finnish Peatland Day
Peatlands in the Bioeconomy World
Helsinki, Finland
2 February 2016, World Wetland Day
www.suoseura.fi

IPS Executive Board Meeting
Helsinki, Finland
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