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Peatlands

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Let us interact - face to face and online

Most of us are waiting for the holidays right now. Summer season gives us a welcome break after many months of working and daily routines in any case. During the break we have a great opportunity to relax, re-think the past and open our minds for the new.

As a new Secretary General of the IPS I find the near future very inspiring and challenging. Although IPS was quite familiar to me even before this spring I am surprised to see, how much work and how many active persons there are actually involved globally in various aspects of peat and peatlands. This is most encouraging and motivating to the IPS and its National Committees!

I am looking forward to lively and open interaction to boost our thinking, welcome new partnerships and cooperation. This is essential for the development of the IPS as a principal forum of all the individuals and organizations with interest or any connection to peat and peatlands.

I think we should also open up more and more for new ways of interaction and channels for communication. Video and tele conferencing, new services of the internet and decreasing

EB Members in Groningen, NL. Photo: Susann Warnecke

costs of keeping in touch offer us perhaps the best means in the IPS history to promote the gathering, exchange and communication of knowledge and experience. Just this week the Secretariat has taken a step towards that direction by strengthening its capabilities to facilitate video meetings and thus also reduce the costs of travelling. Seeing and hearing remotely at the same time should also make smaller informal, preparatory meetings easier.

We need continuous feedback to develop all of our activities. For example the electronic publication

of Peatlands International will reflect the needs of its readers, and you can fill out the short survey at www.bit.ly/17VfJF2. We are also keen to invite all of you to provide us with relevant material for publication.

Perhaps the most respected form of feedback is participation in the many events of the IPS, the National Committees and also our partners. The number of participants reflects not only the importance of the particular theme, but also an individual need to come and meet colleagues. True commitment and right priorities in challenging tasks may only be achieved by meeting people face to face even nowadays, when emails and the flux of information tend to override us.

I think this social aspect of any seminar, symposium or even smaller event must still be kept in mind, although organizations try to reduce their costs and also limit their participation in such activities. I do hope for the best possible participation in the coming events like the IPS Annual Meetings and International Peat Technology Symposium in Riga, the SER Conference on Ecological Restoration in Oulu, Finland, the Growing Media 2030 Seminar in Hanover, Germany, the SWS Wetlands Conference in Huesca, Spain and European Ramsar Meeting in Kufstein, Austria. Please, read more on these and other events in this issue of Peatlands International, Peat News or at the IPS web pages and sign up!

If the previous list of events seems to concentrate on Europe only, I'd like to point out also the activities in Asia. It was most delightful to accept the newly established Chinese National Committee of the IPS. Also the International Peat Congress 2016 is being well prepared for Sarawak, Malaysia. Please see the progress at www.ipc2016.com and explore, get inspired and spread the news!

Hannu Salo

IPS Secretary General
hannu.salo@peatsociety.org

www.peatlandsinternational.wordpress.com

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Kauppakatu 19 D 31, 40100 Jyväskylä
phone: +358 40 418 4075, email: ips@peatsociety.org

Editor-in-Chief
Hannu Salo, IPS Secretary General
Assistant to the Editor-in-Chief & Layout
Susann Warnecke, IPS Communications Manager

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password: ipsmember13

This will give all IPS members reading access during June - August 2014.

Milled peat production site in Finland. Photo: Susann Warnecke

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Viewpoint

Pilpasuo, large natural aapa mire area in the City of Oulu. Protected through the Natura 2000 programme. Photo: Anne Tolvanen

Ecological Restoration attracts people

to the SER2014 European Conference in Oulu, Finland, 3 - 8 August 2014

The ecosystem service concept and the valuation efforts of ecosystem services are changing the discussion concerning land use policy and natural resource management. Increasing knowledge on the importance of healthy ecosystems for human well-being is leading to situations in which multifunctional and ecologically sustainable land use is seen as an option to simultaneously generate ecological, social, and economic benefits. Ecological Restoration is seen as a crucial means to bring back the function and structure of degraded ecosystems. Also the EU puts high effort on Ecological Restoration through its Biodiversity Strategy 2020, which includes a target to restore 15% of degraded ecosystems in the EU by 2020.

Finland hosts the 9th European Conference on Ecological Restoration in August 2014. The specific focus of the Conference is Restoration, Ecosystem Services and Land Use Policy. The timely topic relates the Conference directly to global, EU and national level policies, which aim of safeguarding the environment and biodiversity, and mitigating Climate Change impacts. By acknowledging and discussing international and EU level strategies and targets, the Conference aims at increasing the link between the science and practice of ecological restoration and land use policies.

The event belongs to the Conference series of the European Chapter of the Society for Ecological Restoration (SER Europe). The International Peat Society (IPS) is the Conference Partner through the mutual interests of its Commission V to promote restoration, rehabilitation and after-use of peatlands. The large-scale drainage of peatlands has resulted in the loss of biodiversity, hydrological problems, and increased emissions of greenhouse gases. According to some estimations, peat has ceased to accumulate within over half of the former mire areas in Europe.

There will be almost 400 attendees from 35 countries, presenting science, management, private companies and consultancy firms, EU policy, EU Life+ programme, and Finnish environment policy. Over 200 oral presentations and almost 100 posters will be presented. There will be altogether 40 sessions in the Conference, of which six sessions (33 oral presentations) will be entirely on peatland restoration. In addition,

peatland restoration will be discussed in other sessions, which present restoration for example in EU LIFE projects, urban ecosystems, grasslands, and from the viewpoint of restoration evaluation, social networking, and natural succession.

The Conference is organized in Oulu, northern Finland, which is the first time for the SER European Conferences to be hosted by one of the Nordic Countries. Oulu, which boasts to be the Capital of Northern Scandinavia, is an excellent place to host such event. Oulu can offer a functioning Conference venue at the University Campus and provide abundant opportunities for one-day mid-Conference excursions to see northern Finnish nature slightly south of the Arctic Circle.

Oulu is located in the peatland-richest region in Finland, where almost half of the land area is covered by peatlands. Excursions will show both large-scale restoration in protected areas and smaller-level restoration in the Oulu City recreation area. Various methods of after-use of cut-over peatlands will be shown in one of the excursions. The globally unique attraction is the postglacial land uplift coast. In the region there are chronosequences from pristine 'baby forests' and 'baby peatlands' having just emerged from the sea, up to later successional stages, only a few hundred meters apart. Unfortunately, about 95% of peatlands in this region are drained or are influenced by draining in their environment, and there are few opportunities to improve the situation due to the high land use pressure.

Do you agree? Mail us at ips@peatsociety.org or discuss at www.facebook.com/peatsociety.

We welcome the registered and new Conference delegates to join us in Oulu in August 2014. More information on the Conference: www.ser2014.org.

Anne Tolvanen

Professor, SER2014 European Conference Chair
Finnish Forest Research Institute and
Thule Institute of the University of Oulu
anne.tolvanen@metla.fi

Hirvineva, former cut-over peatland, 45 km from Oulu. Photo: Anne Tolvanen

International Executive Committee and Organising Committee of the 2nd Peat Congress in Leningrad 1962, Allan Robertson first row on the right. Photo: IPS Archives

Always on board. Allan in Jyväskylä in 2010. Photo: Susann Warnecke

† 7 February 2014

Tributes to IPS Honorary President Allan Robertson

We have heard tributes to Allan from his immediate family. I cannot comment on his time as a member of staff at the Macaulay Institute as I was still a student at Glasgow University when his career there was in the ascendency and others have commented on that.

I shall say some words about him on behalf of his other family – his extended peat family that occupied a major part of his life. I am speaking on behalf of several thousand people, mostly, but not all, members of the International Peat Society, more commonly known as the IPS with whom he worked, discussed and befriended over nearly 50 years. In particular, I bring to this commemoration event the condolences and respects of the IPS President, Professor Bjorn Hanell , my co-Vice President Guus Van Berckel and the other members of the Executive Board of which Allan was ex-officio member. We have benefitted from Allan's advice, wit and wisdom for a very long time.

Allan Robertson with his wife Sheena and daughters Barbara and Susan after a reception with the Queen at the Buckingham Palace in 1987.

For the last 18 years Allan was our Honorary President following an even longer length of service on IPS governing bodies. He was a founder member of our Society and, in a very real sense, Allan was synonymous with IPS and through it he built up national and international linkages and relationships that lasted throughout his life. He spread the influence of and gained respect for IPS everywhere he went.

My own acquaintance with Allan dates back to the 5th International Peat Congress that was held in Poznan, Poland in 1976 and we met at virtually every subsequent Congress until the 13th in Tullamore, Ireland. It was at this last Congress that he learned that his wife Sheena had suddenly passed away. I was the person who received the message and gave him the sad news, something he never really recovered from.

I became closer to Allan in 1987 when we both attended an IPS conference on tropical peatland in Yogyakarta, Indonesia, a country I have just returned from. After the paper presentation sessions both of us went on a post conference field visit by Indonesian Air Force transport plane to look at peatlands in Kalimantan (Indonesian Borneo). On the way across the Java Sea we shared a bottle of Glenmorangie malt whisky with our international companions. Allan was always the heart and soul of such trips.

In his later years when most people would have put their feet up and relaxed Allan continued to work on behalf of IPS. He was our first and only Honorary President being appointed at the Bremen Congress in 1996. He was the first

editor of the International Peat Journal and he made major contributions to editing Peatlands International, the IPS Magazine. He was also Chairman of the UK National Committee of IPS. Nothing was too large or small for Allan to carry out on behalf of peatlands, peat or the IPS.

Allan was loved and respected by many, even those with whom he had disagreements. We shall all miss him but we shall not forget him. His legacy will live on.

Rest in peace Allan - our mentor and friend.

Jack Rieley

on behalf of the International Peat Society

Master of ceremonies

It is a sad task to write about Allan Robertson after he passed away a few weeks ago. What he did for the International Peat Society is well known. So I will limit my contribution to my recollection of a party given by Allans good friend Neil Godsman on the occasion of his 50th (?) birthday in a castle somewhere in Scotland.

I remember the excellent food and of course the whisky that kept us going during the long evening, with scottish dancing thrown in as well. But what made the most impression on me was Allan acting as an experienced master of ceremonies, the evening talking together with his jokes and he made sure that everyone was enjoying themselves.

Writing this short contribution is a sad task for me, but on the other hand it feels good to remember him as he was.

Henk van de Griendt

Zwolle, the Netherlands

At the Equator in Kalimantan, Indonesia. Photo: Eino Lappalainen's archives

A special friend

Allan Robertson was for all of us in the IPS family a special friend. I myself met him for the first time at the International Peat Congress in Otaniemi in 1973 and we were together during the Post Congress Excursion in Estonia and Leningrad.

The picture above (Allan on the right) was taken after the 1986 Congress at the Equator in Pontaniak, Kalimantan.

Eino Lappalainen

Rovaniemi, Finland

† 7 February 2014

A true knight

Several years ago, in 2002, Allan Robertson was presented with the Order of the Lion of Finland's First Class Knight Medal. This is a perfect reflection of how greatly we Finns value his services to our country.

Allan was a great friend of Finland. He enjoyed visiting our country during the IPS Congresses, both as a Council and Presidium member and later as IPS Honorary President for various Executive Board meetings, seminars and excursions. In many of these instances he participated at his own cost.

Allan had the longest possible career in terms of the functions he fulfilled for the IPS. He served in a range of different IPS tasks, beginning with the formation of the Society, where he participated by preparing the founding documents. These stages are documented in the IPS archive with the original foundation documents.

As a Scott and a Brit, Allan was a sophisticated and stylish gentleman, who always knew how to act and behave according to the requirements of the situation. As a very humorous person he maintained a jovial and relaxed atmosphere around him, making everyone feel at home and comfortable.

Having had a good memory, Allan knew a significant number of peat family people and felt at home in all the different countries in which peat events were organised. He was especially popular among the Russian and Belarusian industry and research representatives, also due to the central role he played in establishing the IPS and due to his social and pleasant nature, which the Slavic people appreciated.

I remember an occasion in Terijoki (Zelenogorsk) during the 1990s, where a small group of us were updating the peat dictionary. Allan took a walk alone in the woods nearby where he had previously noticed some Russian soldiers on service tasks. He took a pack of cigarettes with him and handed them out as a surprise present to the young men in the middle of the forest. This is but one example of Allan's deep sense of humanity and a willingness to establish contact with people he did not know.

Don Grubich, Allan Robertson and Raimo Sopo during the Annual Meeting Field trip in Finland in 2010. Photo: Don Grubich's archives

Allan was a true and devoted supporter of the IPS. He completed a significant amount of volunteer work in support of the Secretariat, for example, by proofreading articles for IPS publications. He created the IPS scientific publication series and actively participated in terminology work. One example of this is the central role he played in putting together the gigantic and widely-used professional five-language peat dictionary in 1984.

Allan's relevance as an IPS mentor and inspiration over the decades cannot be highlighted enough. I especially remember the strong support and encouragement we received from Allan during the reorganization of IPS governance in the early 1990s, when our office moved from Helsinki to Jyväskylä, with all of its special tasks, including the demanding undertaking of renewing the rules of the Society.

I remain personally missing Allan as a close friend and a human being, as Honorary President of the IPS, and as someone whose input contributed significantly to the work of our organisation.

Raimo Sopo

IPS Secretary General 1992 - 2004
Jyväskylä, Finland

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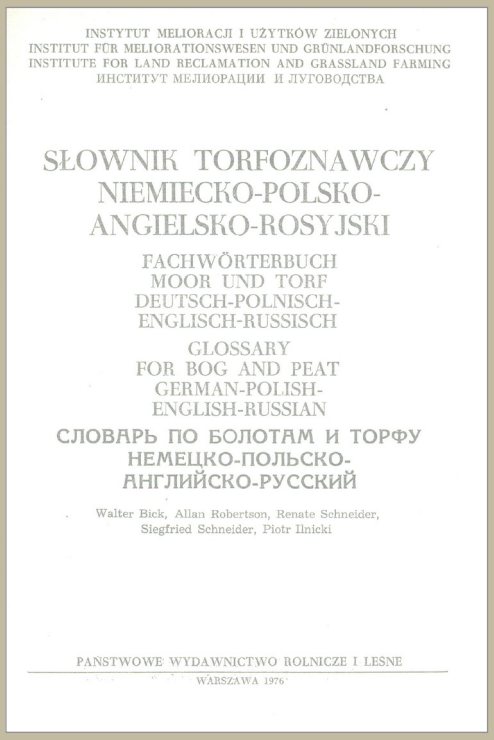
Allan in IPS history...



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СЛОВАРЬ ПО БОЛОТАМ И ТОРФУ
НЕМЕЦКО-ПОЛЬСКО-
АНГЛИЙСКО-РУССКИЙ

Walter Bick, Allan Robertson, Renate Schneider,
Siegfried Schneider, Piotr Ilnicki

PAŃSTWOWE WYDAWNICTWO ROLNICZE I LEŚNE
WARSZAWA 1976

Above: First page of a english-german-russian-polish "Peat Dictionary" , published in Poland in 1976, IPS Congress in Poznań.

Above: IV German-Polish Peat Colloquim, Kühlungsborn near Rostock, German Democratic Republic, 11 - 14 April 1967. From right: Allan Robertson and Olle Uddgren (Sweden), on the left sitting: J. Bernat, Dr. K. Smyjewski, J. Filipowicz (Poland) and Dr. R. Kadner (GDR) during an excursion.

On the right: IPS Executive Board meeting in the Czech Republic, 1999. In the centre V. M. Saveljev (Russia), Allan Robertson (UK) and Nick van de Griendt (the Netherlands) ready for the excursion.

Below: International IPS Congress in Otaniemi, Finland, 25 - 30 June 1972. In the centre Allan Robertson and Piotr Ilnicki talking.

Photos kindly provided by Professor Piotr Ilnicki, Poland

20th Peatland Ecology Research Group Symposium on the Responsible Management of Peatlands: Involvement of the Industrial Sector

Academics, government officials, and industry representatives all met for a two day conference in Québec, Canada this past February. All sides have diverging agendas and a vested interest in peatlands. Could these representatives come together and participate in a dialogue to discuss win-win solutions? In a discussion with another European colleague we wondered if this spirit of working together to create a common solutions is something uniquely Canadian or whether this model could be adapted elsewhere? Is the pressure on the land in Canada so low that there is more room for compromise? I sincerely hope that this model could be adapted in places where there is more pressure on the land. I have learned from this conference that when different groups are willing to enter into a dialogue, common solutions are possible.

Presentations were given by researchers, government officials, and industry to allow each side to present their management issues, problems, and solutions. The conference was divided into thematic session: management of peatlands where peat is extracted for horticultural substrates, biodiversity and policy issues related to wetlands, climate and hydrology generally in relation to the C cycle of peatlands and how to reduce the impact of mines and oil sands petrol extraction in peatlands. Three forum discussions were included after the corresponding thematic session. The first discussion was on the management of horticultural peatlands, the second on peatlands and climate in relation to C reporting, and the last discussion on peatlands and oil sands development.

At the conference. Photo: André-Philippe Drapeau Picard

Peatland Management Session

The conference began with general presentations on peatland restoration. The first presentation was a picturesque virtual trip through five fen restoration projects from the southern tip of Argentina up to the oil sands of Northern Canada. The common thread among all of these projects was that land use changes and mismanagement have been the cause of peatland degradation.

These sites can be restored through active restoration (Cooper 2014). When the drivers in peatland restoration were examined, the most important factor, which contributed to a successful peatland restoration, was management (in short the more closely the guidelines of peatland restoration are followed, the greater will be the success of regaining a dominated *Sphagnum* carpet within 10 years).

Delays in restoration (letting a biological crust to develop), a lower amount of reintroduced plant material, or a spring reintroduction (when ground is really soft or soaked and much disturbance is created by tractor tracks) all reduced restoration success in Canada (Gonzàlez & Rochefort 2014). The peat industry presented their restoration projects, sharing their practical knowledge on the mechanics and logistics of restoration (Bélanger 2014, Basque 2014).

Several presentations were on more specific topics in peatland restoration and reclamation. For peatlands which cannot be restored, two reclamation options, short rotation coppice with willow species and cranberry production, showed promise as alternative after-uses (Quenum & Sall 2014). Several presentations introduced case studies on specific peatland management topics, such as rewetting, suspended sediment mitigation, and oil spill mitigation (Jutras et al. 2014, St-Hilaire 2014, Quinty 2014).

One study showed that the use of pig manure biochar fertilizer, a locally produced product, could be an alternative to using imported phosphate rock fertilizer in restoration (Godbout et al. 2014). In Canada a light phosphate fertilizer is used to increase the establishment of *Polytrichum* moss


Line Rochefort. Photo: André-Philippe Drapeau Picard

and vascular plants (Groeneveld & Rochefort, 2005; Graf & Rochefort, 2008).

Two presentations on horticultural substrates investigated new advances in the physics of growing media and the role of peat in future substrates (Caron 2014; Miller & Mattson, 2014). *Sphagnum* farming, a study which aims to create a sustainable source of high-quality horticultural substrate, showed a high percentage of *Sphagnum* cover after seven years. The next step for *Sphagnum* farming is to test irrigation systems to optimize the mosses' access to water (Pouliot et al. 2014).

Biodiversity and Policy

Three presentations were on different aspects of monitoring biodiversity on abandoned and restored peatlands: invasive species, microbiology, and avifauna. The invasive species cotton grass (*Eriophorum vaginatum*) did not impede the succession of an abandoned site and, thus, should not be a threat to abandoned or restored sites (Lavoie & Saint-Louis 2014).

Roxane Andersen (2014) gave an overview of what has been learned about monitoring microbial communities in restored peatlands and in which direction microbial research is heading. Finally, Desrochers (2014) showed that although the vegetation between restored and natural sites converged after 15 years, the population of the four studied songbirds on the restored and natural

sites did not converge. This non-convergence is likely due to a general decline of these bird populations in the province of Québec.

Two presentations were devoted to wetland conservation. The protected wetlands in Québec were described and an ecosystem services approach to wetland conservation was applied for a case study of the Minganie region (Poulin & Morin 2014). Stéphanie Pellerin (2014) examined the use of two species as indicators for peatland integrity and found that the presence of white fringed orchid (P*latanthera blephariglottis*) may be used to rapidly and accurately evaluate *Sphagnum* bog integrity.

This session ended with a presentation by Daniel Lachance of the Environmental Ministry of Québec on the impact of the Peatland Ecology Research Group's (PERG) publications on policy. PERG has 'torn down the walls between scientists and policy makers (Lachance & Joly 2014).' PERG publications have greatly impacted how the Ministry defines peatlands, identifies conservation areas, and what options are available after peatland extraction.

Climate and Hydrology

The second day of the conference began with a fascinating presentation by William Shotyk on the use of bogs to study metal concentrations in the atmosphere over time. Using peat cores Shotyk (2014) can show that the first anthropogenic increases in atmosphere metal concentrations date back to approximately 6000 years before the present (Shotyk 1998)! Recently, he has tested Sphagnum moss and peat reconstruct atmospheric metal deposition from energy development in Alberta. Please see his upcoming publications for the answer to this noteworthy question.

Four presentations were on peatland biogeochemistry and summarized the latest advances in carbon exchange research. Strack and colleagues (2014) presented on data on how peatlands might respond to climate change. Through experiments that simulated the drying and warming expected for climate change, she found that vegetation productivity responded the hydrological changes, which may mitigate carbon. Petrone (2014) underlined the need to restore hydrology on the landscape scale so that the landscape units (wetlands, forests, and surface water) are connected in the post-mined constructed landscapes. Roulet and Wu (2014) presented two ecosystem biogeochemistry models which are used to simulate the effects of peatland restoration over a long period of time. Luc Pelletier presented a study of the importance of pools in peatland carbon exchange and could confirm that pools are an important source of carbon to the atmosphere (Pelletier et al. 2014).

Two presentations were on peatland hydrology and hydrogeology. Alain Rousseau (Rousseau et al. 2014) evaluated the effect of isolated and riparian wetlands on low and high flows using a hydrological model. He found that isolated wetlands had a greater impact on stream flows than riparian wetlands. Marie Larocque (Larocque et al. 2014) investigated the connection between aquifers and peatlands and found that the majority of transects sampled receive groundwater from shallow aquifers and vertical hydraulic gradients show that water flows mainly downwards.

The last presentation in this session was by S. Hayne (2014) of Environment Canada on the IPCC Wetlands Supplement. She presented the methodological guidelines for developing emission and removal estimates for the national greenhouse gas inventories. The following discussion debated questions such as who is responsible for decomposing peat - the peat company or the purchaser? Another question discussed was should re-wetting count for as many carbon credits as restoring (where vegetation is reintroduced)?

Mines

Northern peatlands are increasingly being impacted by mines. Three presentations on this topic examined the impacts and rehabilitation of northern peatlands affected by mines. Jonathan Price presented a study, which assessed the hydrological impacts of a diamond mine on the surrounding peatland. He found that bogs were more affected by water drawdown than fens as fens can

re-supply their water from more distant locations (Price et al. 2014).

Daniel Campbell assessed the rehabilitation of winter roads, a common disturbance in northern peatlands. He found that the roads recolonize spontaneously, but that active reintroduction of *Sphagnum* mosses was necessary on severely disturbed sections. However, in contrast to the restoration techniques of cutover bogs, straw mulches are not needed (Campbell et al. 2014). Finally, Colin McCarter assessed the effectiveness of ribbed fens in wastewater treatment of northern settlements. He found that the majority of flow was located in the upper layers of low-lying preferential flow paths. This low residence time translates to lower ability to remove contaminants from wastewater.

Oil Sands

The last session of the conference was dedicated to the controversial oil sands development in Northern Canada. Presentations were on restoring disturbances from both *in situ* and open pit oil sands mining. In-situ oil sands mining is where the surface layer is kept intact and the oil is removed through steam injection. *In-situ* oil sands development disturbs northern peatlands by the construction of seismic lines, well pads, roads, and pipelines (Turchenek 1990; Forest 2001). Open pit oil sands mining is when the oil sand is close enough to the surface so that the oil sands can be extracted. For this type of mining, the surface layer is completely removed to access the oil sands below. After mining, new landscapes must be created. As landscape prior to extraction is about 50% peatlands, recreating peatlands in the post-mined landscape is crucial.

Jonathan Price began the session by presenting the challenges and opportunities of reconstructing hydrology in post-mined landscapes. He emphasized the need to use natural ecosystems as an analogue to recreate similar landscape. The new landscapes must be designed so that the overburden material will allow hydrological connectivity between created ecosystems (Price et al. 2014).

Bin Xu talked about his new research chair in peatland restoration at the Northern Alberta Institute for Technology (NAIT). He argues that in-situ oil sands mining is more harmful that open pit mining because it covers a much larger area and because it results in much higher greenhouse gas emissions. His research group is monitoring the vegetation, hydrology, chemistry, topography, and wildlife on a restored well pad (Xu 2014).

A series of student presentations showed current research projects on the restoration and creation of wetlands in the post-mined oil sands landscape. The effect roads have on vegetation and hydrology was examined (Bocking et al. 2014). The hydrology of a constructed fen was assessed (Ketcheson & Price, 2014). The evapotranspiration in a constructed fen was evaluated under different treatment (moss, straw and moss, and bare peat; Scarlette and Price, 2014). Lastly, the mobility of oil sand byproducts (napthenic acids, vanadium, and sodium) in the constructed fens was examined (Simhayov & Price, 2014).

The conference ended with a discussion on the wise use of peatlands within the oil sands production area lead by Tatiana Minayeva (Minayeva et al. 2014) of Wetlands International.

The most interesting proposition that resulted from this discussion came from Line Rochefort. She proposed that instead of spending billions of dollars to re-construct a few hectares of fens (as post-oil sand extracted landscape is remodeled into low rolling hills not suitable to flat wetland creation), the money would be better spent by conserving or restoring other valuable wetlands at the regional or even international level. If we consider the global carbon budget, this money would go much further by conserving and restoring wetlands in Indonesia, for example. When many sides come together to discuss common problems, such innovative ideas are the result.

The conference abstracts are available at www.gret-perg.ulaval.ca/fileadmin/fichiers/fichiersGRET/pdf/colloques/Progr_resumes_Colloque2014_final.pdf.

Martha Graf

Hanover, Germany
graf@umwelt.uni-hannover.de

The EU-funded Tellus Border Soil Carbon Project; Using Airborne Geophysical Data for Soil Carbon and Peat Depth Assessment

The EU-funded Tellus Border Soil Carbon and Peat Depth Assessment project was a two year research project (October 2011 - September 2013) and part of the EU INTERREG IVA-funded Tellus Border survey project (www.tellusborder.eu). The aim of the project was to assess the usefulness of airborne geophysical data integrated with ground-based data to improve current estimates of carbon in soil and peat depths across Northern Ireland and the bordering counties of the Republic of Ireland.

Data Acquisition

The project used geophysical data generated by two airborne surveys; the Tellus Project (2004-2007) along with the more recently acquired data collected as part of the Tellus Border project covering the six bordering counties – Donegal, Sligo, Leitrim, Cavan, Monaghan and Louth (2011-2013). The Tellus Project remains the most comprehensive geological mapping study ever performed in Northern Ireland (GSNI, 2011).

Alastair Ruffell, Antoinette Keaney and Martin Robinson using ground penetrating radar (GPR) at Kinlough, County Leitrim, Republic of Ireland. Photo: Jenny McKinley

The Tellus Border project was a continuation of the Tellus survey. Both these data acquisition projects included an airborne geophysical survey and a baseline geochemical survey.

Saturated peat attenuates the radiometric signal from underlying soils and rocks. Research within this project explored the value of integrating airborne geophysical with soil geochemical data to provide information to assess peat depths and soil organic carbon (SOC) for individual lowland raised peat bogs and more extensive blanket peat land. Historical reports, previous surveys based on analysis of land use data for both Northern Ireland and RoI provided baseline data to monitor change in peat depth and SOC.

Previous surveys for Northern Ireland involved extensive ground based examination, peat depth data and delimiting site boundaries for raised peat bog sites. A methodology was developed to integrate airborne geophysical (radiometric) data with ground-based measurements of peat depth and SOC which applied spatial statistical techniques and geographical information systems (GIS) for soil carbon mapping. Contemporaneous ground-based measurements data were collected to corroborate the mapped outputs. At selected field sites ground-based measurements included rainfall monitoring, peat depth probing and the use of ground penetrating radar (GPR) combined with real time monitoring and use of Global Navigation Satellite System (GNSS) to independently determine peat depth.

As part of the project a GNSS monitoring experiment was installed on Ballynahone Bog, Maghera, County Londonderry. This installation observed the surface variations on the bog using real-time or near-real time GNSS observations. Installation of the real-time peat monitoring equipment in collaboration with the Ulster Wildlife Trust was linked with ENVISION, the Community Heritage Project.

Research Approach and Findings

The project approach involved the use of test lines, raised peat bog case studies, a regional survey of Northern Ireland and a county by county assessment for the six bordering counties in the RoI. Two test lines, which were flown as part of the Tellus Border geophysical survey, were used to examine the relationship between airborne and ground geophysical data across peat covered areas. The location of the test lines were in Kinlough, County Leitrim (RoI) and Sliabh Beagh, covering Counties Fermanagh and Tyrone in Northern Ireland and county Monaghan (RoI).

The test line at Kinlough, County Leitrim, included areas with varying land use types. Radiometric data were assessed with rainfall data to examine the effect of temporal variation of saturation levels on the ground (as peat is predominantly composed of water) to assist peat depth interpretation. This allowed the temporal variation in airborne radiometrics signal and ground-based spectrometry data to be assessed across different land cover and compared to peat covered areas. The results showed that while the radiometric signal was variable with varying saturation levels across other land uses (forestry and arable), the results were more consistent for peat covered areas. Airborne radiometric data for peat covered areas are less affected by this variability in saturation levels as peat bogs remains wet.

Peat depth survey data for individually raised peat bogs, previously surveyed by the Northern Ireland Environment Agency, were compared with mapped outputs of airborne radiometric geophysical data from the Tellus Project, GSNI using the developed spatial statistical approach. The results were validated by field work techniques including peat probing and GPR. Blanket peat can cover kilometres of upland areas and although peat survey assessments may exist, peat depth measurements are limited.

The use of remotely sensed airborne radiometric data can provide a spatial estimate of peat thickness and an assessment of temporal changes in peat covered areas. Soil samples were collected across an area of upland blanket bog on Sliabh Beagh, extending across the border between Northern Ireland and the Republic of Ireland. Soil sampling was undertaken to measure bulk density and soil organic carbon to determine volumetric carbon content. Soil carbon density, the mass of organic C per unit area, was calculated using percentage carbon, bulk density and depth values. Organic matter content was measured by

Loss on Ignition (LOI). The BGS LOI experimental methodology was followed (www.bgs.ac.uk). The aim of sample collection was to develop a statistical model for volumetric carbon content to 0.5 metres, taken on the same sampling support as the Tellus Border geochemistry survey. As a result, data from the radiometric airborne survey can be utilised to establish volumetric carbon content across the studied region.

Conclusions

Peat bogs are delicate environments. Previous studies required time intensive field surveys. Improved peat thickness estimation produced through the integration and calibration of the Tellus and newly acquired Tellus Border data against previously recorded peat depth data and peat surveys can be beneficial for updating carbon stock estimations.

The approach adopted in this project can be used to improve estimates of soil carbon and peat depth with minimal impact to sensitive habitats. The use of the spatial statistical approach has enabled a spatial assessment of peat thickness and minimises destruction to a sensitive habitat. The findings have a broader global significance to promote the use of remote sensing for spatial estimates of carbon stock.

Acknowledgements

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Jennifer McKinley, Alastair Ruffell & Antoinette Keaney

School of Geography, Archaeology and Palaeoecology
Queen's University Belfast
Northern Ireland, BT7 1NN
j.mckinley@qub.ac.uk

Jenny McKinley taking ground-based spectrometry data on the raised Ballynahone peat bog, County Londonderry. Photo: Antoinette Keaney

Conference Report: International Peloid Congress Bad Bayersoien 2014

The biannual International Symposium of Section VI "Balneology and Medicine" of the German Peat Society (DGMT) took place from 21 - 22 March 2014 at Bayersoien Spa in Bavaria with approximately 60 participants.

At the event, an overview of the scientific status of peloid therapy was given under the scientific leadership of **Prof. Dr. med André-Michael Beer,** the Chairman of Section VI from Hattingen, and Dr. med Thomas Autenrieth from Saulgrub.

After the opening and welcoming words of the participating scientific societies, **Christian Loth** (Oberammergau) reported on peloid therapy from the point of view of economy, ecology and tourism. At its peak, approximately 800,000 treatments were prescribed nationwide but, nowadays, as a result of health reforms, these have fallen to about 80,000 treatments. This has had severe consequences for spa facilities.

The next speaker, **Dr. Gerfried Caspers** (State Authority for Mining, Energy and Geology of Lower Saxony, Hanover) reported on the climatic impact of peat. In Germany most of the mires are drained. Therefore they are a significant source of greenhouse gas emissions. Roughly estimated, German peatlands release 31 million tons of CO2 equivalents each year, which compares to 2.8% of the overall emissions of Germany. During the recent years, there has been a major focus on reduction of gas emissions from peatlands, e.g. by raising water levels.

Prof. Dr. André-Michael Beer (Blankenstein Hospital, Hattingen) explained the current state of research on the effects and effectiveness of peloids. Although the thermo-physical effects of the various kinds of peat do not differ significantly, they do differ in terms of their biological effects. This includes e.g. anti-bacterial, antiviral, anti-inflammatory and immunomodulatory effects. The detected effects on the α-, β-, histamine and dopamine re-ceptors explain the successes of the peat treatment which have been clinically observed for certain indications for years. Peat therapy is a treatment full of advantages and its use is justified through evidence-based studies.

Prof. Dr. habil. Julian Lukanov (Sofia, Bulgaria) reported on the origin of the biologically active substances (BAS) in peat. In the literature it is still assumed that certain BAS could renew during the process of humification. However, the probability of this is extremely low. Instead, according to Lukanov, the humification process leads to the formation of chelate complexes which bind the BAS and also inactivate their chemical activity. Results of his own experimental research show that more than 2/3 of the BAS is tied in peat in those chelate complexes. Temperature and changes in pH facilitate the opening of the chelate so that the BAS are released.

Dr. med. Leena Larva, Chair of Commission IV of IPS, Finland, and Prof. Dr. med. André-Michael Beer, Chair of Commission VI of the German Peat Society.

Melinda Goertz (Bad Kohlgrub) explained the concept of the scientific monitoring of selected health resorts in the peat spas of the Ammergau Alps. Her aim was to show the efficacy of health cure applications, particularly of peat therapy on healthy and diseased individuals compared to people seeking recreation.

Dr. Karl-Rüdiger Wiebelitz (Perleberg) reported in his presentation about the results of the study presented by Goertz which shows clearly that the majority of the guests were satisfied with their stay and that they obtained relief from their physical and/or mental problems.

Prof. Dr. André-Michael Beer (Blankenstein Hospital, Hattingen) spoke about of the evidence for infertility treatment with peat. The spa resorts Kohlgrub and Bayersoien tried to audit their own positive experience with this approach in the context of the Goertz and Wiebelitz studies. However, only a few female infertility patients participated in the study and therefore the therapy could not be proven by this research.

On Friday afternoon, several presentations on the efficacy and effectiveness of peat treatments for various diseases were given. **Dr. med. Robert Kovarik** (Paraguay) talked about a vaginal treatment with peat for the areactivity of the endometrium. The reason why the majority of attempts of the implantations fails is still unknown in detail. Probably some of the egg cells are not "accepted" by the endometrium. An effective hormonal treatment against this „Areactivity of Endometrium" is hardly known. Complementary hot peat vaginal treatment can effectively help in a physical-medical (neurophysiological) way.

Graduate Economist Dieter Frisch (Ludwig-Maximilians-Universität, Munich) presented a project on the topic "In the moor to inner balance - a comprehensive programme of stress management and burnout prevention in the Bavarian mud spa Bad Aibling". This dealt with the development, implementation and evaluation of a 3-week program for burnout prevention, including investigations of the effect of a full peat bath.

Gynecologist Leena Larva (MD, Metsäkansa, Finland), reported on a pilot study of the influence of the Finnish peat sauna on menopausal symptoms. Six visits to the sauna for a period of three weeks brought many positive influences and she concluded that the peat sauna is a good method to reduce menopausal syndromes.

Nicole Matthai (Lauterhofen) spoke on the results of a double-blind randomized controlled study of the efficacy and safety of peat preparations for idiopathic cervical dystonia. It was found, among others, that the indoor naturopathic complex treatment carried out at the Department of Naturopathy, Blankenstein Hospital, Hattingen, induces positive effects in this respect. The peat preparation leads to an improvement of overall satisfaction of the clients. Moreover, the peat preparation showed evidence of pain relief in torticollis disease.

Prof. Dr. med. vet. Monika Krüger (bacteriology, mycology, University of Leipzig) tested in her investigations humic acid preparations of WH67 (Activomin and Humic Acid WH67®). 10 test persons received Activomin in advised dosages over 44 days. After 2-3 weeks of application it could be shown that fecal bifidobacteria, lactobacilli, and Enterococcus numbers increased significantly while Clostridium perfringens, Gram-negative enterobactera and yeasts deceased significantly.

Prof. Dr. André-Michael Beer (Blankenstein Hospital, Hattingen) reported that the results of an observational study of the dermatological compatibility of peat extracts (Moorcreme, Psoriasum® Vital) showing them to be allergen-free.

The Spanish research group of **Prof. Francisco Maraver** reported on peloid therapy issues and spa research in Iberoamerica. These studies have been conducted since 2007. As a result a large multidisciplinary group was created, whose achievements include the development of an updated peloid glossary and the proposal of a study protocol on the physical and chemical properties of these products, all thanks to financial resources due to competitive research projects. Comparative studies on the thermal profiles with respect to two products used as solid phase for the preparation of therapeutic peloids were presented by the working group. The two products chosen are SPLF ELITE (Tolsa), a sepiolite, and Kaolin G-40/77M (Caolines de Vimianzo S. A. u. AVISA), a kaolinite.

T. Masiukovichi (Department of Technology, Pharmacology, Tbilisi State Medical University, Georgia) reported on a study of the chemical and pharmacological properties of mineral resources, including peloids and clays, of the Adjara region. In water extracts of some peloids, bacteriophages were detected (Adams method), which have the ability to lyse E. Coli and Staphylococcus. It was revealed that the research objects do not have the local action of acute and subacute toxicity, local irritation, allergic reaction, internal organs damage or systemic action.

Leena Larva (Finland) presented the results of a comparative study which was performed together with the Russian Academy of Agriculture Sciences in Moscow: Humic substances from mud of Lake Saky, Crimea for balneological purposes.

On Saturday morning, **Dipl. Ecologist Manfred Hessel** (Waltrop) revealed several case studies on the use of peat and peat supplements in horse feeding. The animals accepted the peat preparations readily, as well as the complementing herbs.

Alexey Layer (Alnova, Karlsruhe) reported about new experience over recent years concerning the SIVASH-Peloidtherapy. This peloid is formed in the western part of the salt lake Sivash, Crimea. According to Layer, there were positive results in the treatment of diseases such as herniated disc or tendonitis.

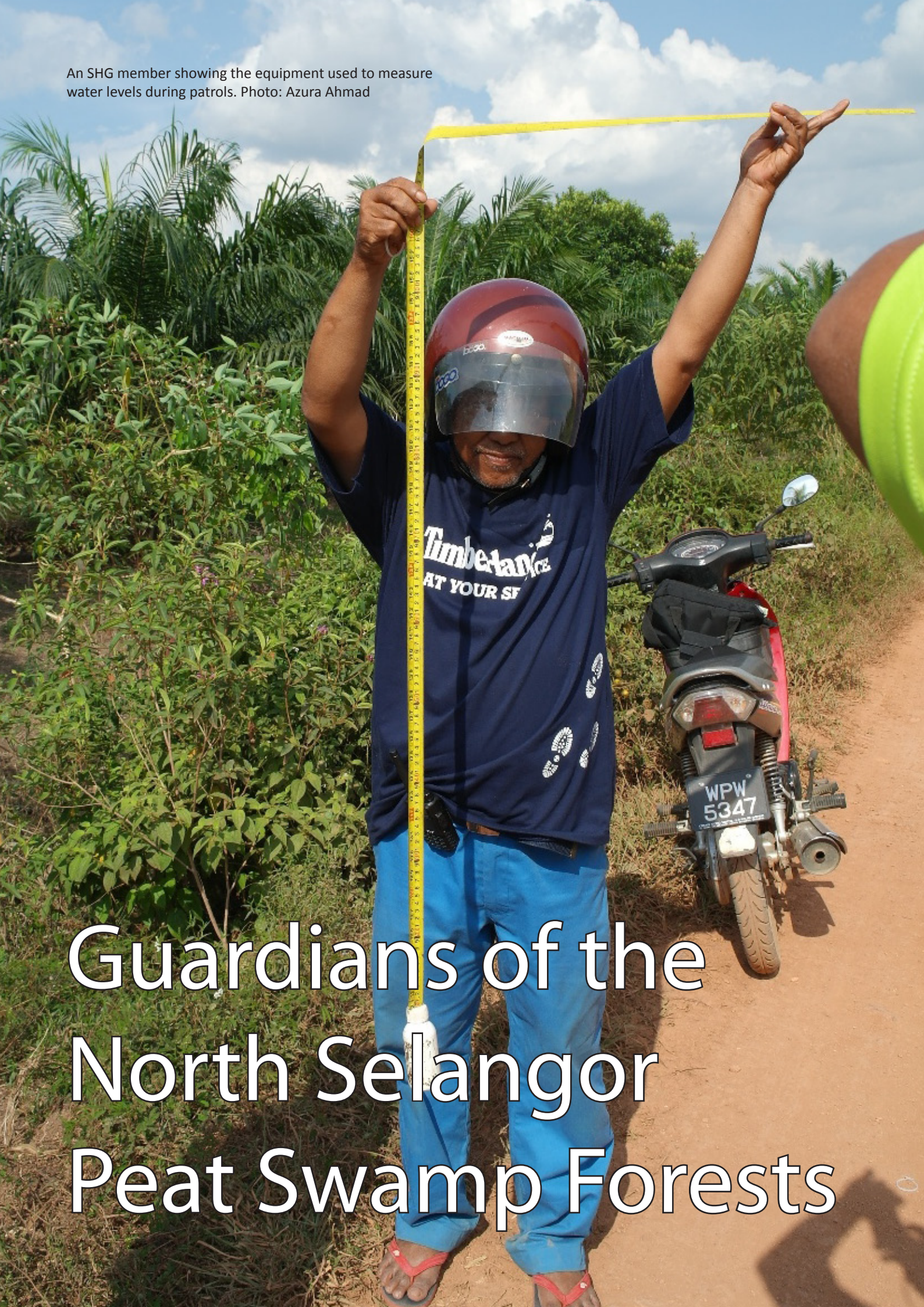
Paul Haslauer (Mitterfelden) said in his presentation that treatments with peat belong to the old treatments that are very popular with Spa clients.

The final panel discussion showed that peloid therapy, especially with peat, still has a high value in Germany, but particularly also in Eastern European countries. The conference has taken a good course. Special thanks go to all the participants, speakers and organizers who contributed to its success. The next international conference on these topics will take place in Hattingen Blankenstein, Germany on 11 - 12 March 2016.

André-Michael Beer

Klinik für Naturheilkunde, Klinik Blankenstein
Hattingen, Germany
andre.beer@klinik-blankenstein.de

Participants of the Congress at Bayersoien Spa. Very left: Dr. Gerhard Caspers, Chair of the German Peat Society (DGMT) and Prof. Dr. André-Michael Beer, Chair of Commission VI of the German Peat Society.



An SHG member showing the equipment used to measure water levels during patrols. Photo: Azura Ahmad

Guardians of the North Selangor Peat Swamp Forests

North Selangor Peatswamp Forest


Canal blocking by volunteers. Photo: Nurhayati Hassan

The North Selangor Peat Swamp Forest (NSPSF) encompasses 73,592 hectares on the northwest sector of the state of Selangor in Peninsular Malaysia, comprising Sungai Karang Forest Reserve (50,106 hectares) to the north and Raja Musa Forest Reserve (23,486 hectares) to the south.

This is the largest remaining peat swamp forest on the west coast of peninsular Malaysia and is critical for biodiversity conservation, water resource management and carbon storage. The forest is home to large mammals such as leopard, tapir, and Malayan sun bear as well as more than 100 species of fish including six recently described species unique to this site.

Both Raja Musa and Sungai Karang forest reserves are managed by the Selangor State Forestry Department. With a moratorium on logging in place, one of their tasks is to ensure there is no illegal logging or encroachment in the area that surpasses Singapore in size. Periodical aerial surveys are conducted to detect signs of illegal activities as well as to assess the health of the forest.

While the vegetation is classified as logged over forest, the area outside its boundaries is populated with villages and small towns, paddy fields, oil palm estates and smallholdings. Some of the larger agricultural players in the area are Sime Darby Plantations, Kumpulan Darul Ehsan Berhad and the Selangor Agriculture Development Corporation. Neatly separating the two forest reserves is Sungai Tenggi, with Sungai Karang to its north and Raja Musa to the south. Together with Sg Bernam, it feeds a canal that irrigates the paddy fields nearby.

The water is supplemented by peat water from surrounding peatswamp forests; illustrating the importance of the peat swamp forest to rice production. This area near the coast, from Sabak Bernam to Tanjung Karang is the rice bowl of Selangor and one of the most productive rice growing area in the country, producing up to 10 tonnes per hectare. Sungai Tenggi is also the main source for a water treatment plant which processes and supplies potable water to users in this area.

In the southeast corner of the Raja Musa Forest Reserve is an area which had been cleared for agriculture in the late 1990s by illegal settlers. While the encroachers have been evicted in 2008 and the crops destroyed, the forest has been slow to regenerate.

Conservation

Raja Musa Forest Reserve has been designated as a pilot site for the ASEAN Peatland Forests Project (APFP), funded through the Global Environment Facility (GEF) and the International Fund for Agricultural Development (IFAD), with the Forestry Department of Peninsula Malaysia as the country executing agency. Various activities have been planned to rehabilitate damaged areas, secure the forest boundaries and protect the area from further damage.

Aerial view. Photo: Nagarajan Rengasamy

A related conservation project for the forest reserve, SEApeat Project is funded by the European Union and implemented by the Global Environment Centre (GEC). The activities support the protection of the forest reserve through multi-stakeholder engagement especially through the establishment and development of a community group known as the Sahabat Hutan Gambut Selangor Utara (SHGSU).

GEC and the Selangor State Forestry Department are working on the rehabilitation of 1,000 hectares of degraded forest in Raja Musa. The key activity is monthly tree-planting and canal blocking activities by volunteer groups comprising of school children, college students, corporate staff and local community funded by several corporate donors. The key species planted during these sessions are two known pioneer species, Macaranga and Euodia. These pioneer species grow well in exposed areas and in two to three years, could provide shade for the growth of successive species. The team is now starting to experiment with small numbers of 'kelat paya' (Syzygium myrtifolium) trees under the pioneer species. Tree planting helps restore the natural vegetation while canal blocking helps to raise water levels in the rehabilitation area. Water management has proven to be an essential tool to re-wetting the peatlands and keeping fires at bay.

The project has promoted the use, for fire prevention, of a Fire Danger Rating System (FDRS) which is a system that assesses the likelihood of fire based on information such as rainfall, temperature and wind speed. The fire danger rating, marked with red, yellow, green and blue on a map, is updated online daily by the Malaysian Meteorological Department (MMD). In the field, the rating is indicated using large billboards with the colours in a semicircle and a needle indicating the current danger rating (pic).

Sahabat Hutan Gambut Selangor Utara

Sahabat Hutan Gambut Selangor Utara (SHGSU) or in English, North Selangor Friends of the Peatland Forests, is an organisation registered with the Malaysian registrar of Societies. It was an initiative by members of communities living around the peat swamp forest area with support from GEC. GEC provided guidance and assistance in developing the organisation, creating awareness for fire prevention and organising ground patrols.

Currently, members come from 4 villages – Kg. Ampangan, Kg. Seri Tiram Jaya, Kg Raja Musa and Kg Bestari Jaya. Although the Society has been in

Ecotourism - villager teaching visitors to weave palm leaves into rice containers.

Rehab site in 2008. Photo: GEC

One of the nurseries supplying saplings for rehabilitation. Photo: GEC

FDRS Board 3. Photo: Azura Ahmad

Angler cleaning a tapah fish caught in the canal. Photo: Azura Ahmad

Site that burned in 2012, a year later. Photo: Azura Ahmad

Canal blocking by volunteers. Photo: Hyrul Izwan

A canal block for hydrological restoration. Photo: Nagarajan Rengasamy

existence for less than 2 years, they play a large role in protecting the North Selangor Peat Swamp Forest.

Other than lending a hand in fire-fighting operations, the SHGSU helps to prevent fire by patrolling fire prone areas. During their rounds, which are almost daily in the dry season, they advise people who may be clearing land to make sure they don't use fire. At selected locations, they measure the water table and ground conditions. They adjust the FDRS board indicator to show the day's fire danger rating according to the MMD website. They also climb a water tower and use binoculars to scan the surrounding land for signs of fire.

As an economic incentive, some of the villagers have been assisted to establish nurseries and raise tree seedlings which are bought by GEC and the Forestry Department for the forest rehabilitation activities. For others, like the community in Kg Ampangan which is already running a homestay business, they see an opportunity to expand their services. Working with the Forestry Department, they hope to include ecotourism at a nearby portion of the peat swamp forest which has been identified near their village.

As the blackwater canals around the reserves are home to several game fish such as ikan tapah (Wallago sp.), they are popular destinations among anglers. There has been some discussion between the SFD, GEC and the community to monitor visitors in order to keep land encroachment and fires at bay. A partnership would assist the enforcers and allow the community to earn some income from protecting the peat swamp forests.

Overcoming Challenges

Prior to the start of the programme efforts to prevent fire and to rehabilitate the forest were not successful. In the early days, many of the native peatland species planted in the rehabilitation effort did not survive due to low water levels, rapid growth or weeds and frequent fires. Since the programme has started, community engagement and good water management has created better conditions for forest recovery and fires are less frequent. Fires are normally deliberately lit for land clearing on the borders of the forest reserve and once they spread inside they are hard to control. In 2009/10 fires burnt 2,000 ha inside the forest reserve. After the project started fires have been reduced by enhanced monitoring and enforcement as well as collaborative fire fighting to 500ha in 2013 and 600 in 2013.

The Future

We are hopeful that rehabilitation work will continue in the Raja Musa Forest Reserve, and that the synergistic cooperation between communities, government departments, NGOs and the private sector can continue well into the future, for the sake of the peat swamps of North Selangor and the communities that depend on it.

About the Author

Global Environment Centre is a Malaysian non-profit organisation established in 1998 to work on environmental issues of global importance. GEC works regionally and internationally both directly and through many partners. It supports information exchange and capacity building as well as undertakes strategic projects, particularly in developing countries. It works in partnership with other like-minded agencies worldwide. GEC's mission is to support the protection of the environment and sustainable use of the natural resources to meet local, regional and global needs, through strategic partnerships with communities and like-minded organisations.

The ASEAN Peatland Forests Project (APFP), funded by GEF/IFAD, and led by the ASEAN Secretariat, aims to demonstrate, implement and scale up the sustainable management and rehabilitation of peatland forests while the SEApeat project, funded by the European Union, seeks to reduce deforestation and GHG emissions via degradation of peatland forests in Southeast Asia.

Noor Azura Ahmad

Communications Officer
Forest & Peatlands Programme, GEC
azura@gec.org.my

Peatlands: ecology, sustainable use and contributions to socio-ecological development

Wetlands Biodiversity and Services:
Tools for Socio-Ecological Development:
International Wetlands Conference, Huesca (Spain), 14 - 18 September 2014

The management of peatlands includes diverse peatland uses ranging from biomass production, construction development, peat harvesting, all forms of after-use and conservation. A sustainable peatland management advocates for a balanced stewardship of the environmental, social and economic values of peatlands at the local, regional and global scales. Socio-ecological development represents a new framework where sustainable peatland use can fit, especially when participation of the local community plays a fundamental role in the decision-taking process. Therefore, all stakeholders with an interest in responsible peatland management are welcome to participate in this event.

Structure: Panelists will give presentations on the ecology, sustainable management and peat use, restoration, ecosystem services and socio-ecological development of peatlands. There will be time allocated for questions from the audience and dialogue among panelists about current and future trends in research in science, policy and management of European peatlands.

Goal: To provide a platform for sharing experiences about peatlands sustainable management and peat use and an opportunity for dialogue.

Example of restoration of a mesotrophic fen in Elimyssalo, eastern Finland in 2007, upper before and after below. Photos: Anne Tolvanen

Importance and interest

The Ramsar Convention on Wetlands encourages international cooperation on wise use, sustainable development and conservation of global peatlands. In their Peatland Section, the Society of Wetland Scientists states the mission of advancing research and application on Peatlands phenomena that regulate wetlands. One of the specific goals of the SWS Peatland section is to organize symposia on important developments in peatlands, while interacting with other SWS sections to enhance inter-disciplinary research.

www.wetlands2014.eu

Dr. Eduardo González Sargas (symposium organizer): eduardo.gonzalez-sargas.1@ulaval.ca.
Dr. Francisco A Comín (conference chair): comin@ipe.csic.es. More info at: wetlands2014@csic.es

Peat producer increases market share with turnkey plant

Peter Peat, headquartered in Dzerzhinsky, Russia, began processing peat as fuel for the electrical industry in the 1950s and, over the years, began packaging peat for horticultural use as well. By November 2010, the company had decided to greatly expand its ability to supply growing media, recalls Mr. Evgeny Kleymenov, Field Sales Manager for Premier Tech Chronos, a global supplier of manufacturing solutions.

Growth market

And no wonder. Gardening is a rapidly expanding industry in Russia, according to global strategic research firm Euromonitor International. Data published by the firm in October 2013 reports that the value of the Russian gardening industry rose 13% in 2012. The industry's predicted annual growth rate of 5% is expected to produce a total value for the Russian gardening market of RUB 103 billion by 2017, up from RUB 82 million in 2012.

The drum mixer's gentle tumbling action preserves the quality of coarse peat fibers, while its continuous rotation ensures that product is mixed from the time it enters the equipment until it exits.

Weighing-dosing units for additives make it possible for Peter Peat to mix as many as eight (8) different components simultaneously to create a wide range of substrates.

Accessing growth

However, Peter Peat couldn't access this lucrative market because its equipment was outdated, limiting the company to producing small volumes of products for hobby gardeners. Without up-to-date equipment there was no way to increase output or to initiate production of products for the professional gardening market.

"The company's desire to take its place as a leading producer of peat and substrates in Russia prompted it to build a modern plant for peat processing. In February 2011, Peter Peat asked us for a solution," says Mr. Kleymenov.

"Our company chose Premier Tech Chronos because it's an international leader in high-tech processing and packaging equipment," explains Deputy General Director of Peter Peat, Mr. Roman Truntsev. "The equipment helps us provide

consistently integrated products due to accurate dosing and blending."

Equipment

To achieve Peter Peat's goal of increasing its ability to process peat from raw material into a greater variety of finished products required the installation of screening, mixing, and packaging lines. The *screening* line removes rocks, wood and other contaminants from raw peat using a disk screener. This initially cleaned peat is then separated by star screeners into three (3) fractions: 0-10 mm, 10-20 mm, and 20-40 mm. Bulk hoppers and conveyors keep material moving through the screening line and deliver the screened peat to the mixing line.

The *mixing* line includes hoppers, conveyors, and weighing feeders for peat, in addition to volumetric feeders for additives. Dosing systems for liquid fertilizer and wetting agents, as well as drum mixers and surge hoppers, complete the line. "Because the dosing system allows us to mix up to eight (8) different components simultaneously, we can create unique substrates according to any formula," Mr. Truntsev points out.

The *packing* lines bag material destined for both the hobby and professional markets. Retail products ranging in size from 5 to 110 liters are produced by a horizontal form-fill-seal bagger. To package the larger volumes needed for the professional market, a VP-400 four-station compression bagger produces bales of 100-250 liters.

Production speed of the AP-435 high-level high-speed palletizer matches the FFS-200 bagger's maximum output of 35 BPM, allowing these machines to work together to efficiently and quickly handle 5- to 110-liter bags for retail customers.

Seen here, the Rainbow stretch-hooder is capable of securing and protecting up to 120 pallets per hour.

Palletizing and hooding. A model AP-400 series high-level palletizer handles up to 35 bags per minute while a model AP-425 series high-level palletizer capable of handling up to 25 bags per minute stacks the bales. Pallets are then hooded by a Rainbow stretch-hooder with an output of 120 pallets per hour. In addition to preventing bags and bales from shifting during transport, the hood protects them from water and dust. This protection is an important consideration not only to ensure that bags and bales reach the customer safely, but also because it maintains an attractive and professional-looking product presentation for customers and end users.

Custom design

Equipment lines were customized to meet Peter Peat's needs. The form-fill-seal bagger, for example, required Premier Tech engineers to design a filling chute for use with 5-liter bags, which have a smaller opening than the other size bags. Premier Tech engineers also were asked to design a system to produce grow-bags with perforations that allow greenhouse growers to plant directly into the bags. Production speed and efficiency are maintained despite the addition of this step, since the customized system adds perforations while bags are being conveyed to the palletizer.

The VP-400 SE-E four-station automatic baler is designed for 24-hour/day, year-round operation. Its output of up to 5.5 bales per minute makes it a sensible choice for the high-volume automated production planned by Peter Peat.

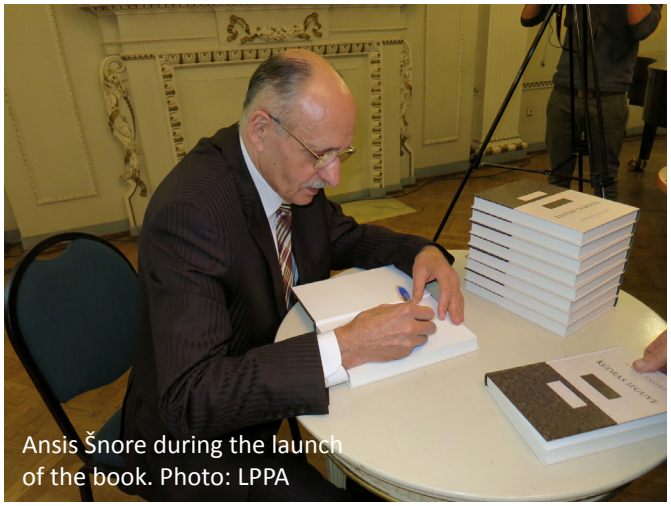
Critical deadline

Efficiency and relative speed were hallmarks of the installation process as well, despite the challenges of delivering equipment to the company's remote location in Russia. "The first deliveries arrived in September 2012," says Mr. Guillaume Lessard, Project Management Director at Premier Tech Chronos. "We had deliveries up to late October. The customer site is very remote and we understood that it would be a challenge to ship parts after the main deliveries [were complete]. Accordingly, we made sure we had a safe quantity of spare parts handy during installation. The line was capable of running at full capacity, and employees were trained, by April 2013." It was critical that Premier Tech met this time-sensitive deadline so that the plant could start processing peat as soon as harvest of the raw material resumed when the ground thawed in the spring.

Breaking new ground

Output at the new peat-processing plant has increased significantly because of "the new high-tech equipment," reports Mr. Truntsev. Peter Peat is on track to manufacture up to 60,000 cubic meters per year of 5- to 50-liter bags of growing media for hobby gardeners "and up to 220,000 cubic meters" annually of 100-, 150-, and 250-liter bales for the professional gardening market, he predicts. "The modern equipment will help us occupy a considerable market share." For more information, visit www.ptchronos.com.

New Latvian peat production book after half a century interval


Ansis Šnore during the launch of the book. Photo: LPPA

Despite the fact that peat is one of the major natural resources in Latvia, the previous book about peat extraction in Latvian was published as far back as the year 1963.

Therefore, the publishing of the voluminous work entitled “Peat Extraction” by engineer Ansis Šnore is an important event not only for those who work in the Latvian peat sector but also for many other professionals who are in one or another way related to this sector. This was confirmed by a great number of interested persons attending the book launch event at the Riga Latvian Society House on the 3rd of December 2013.

The book “Peat Extraction” was written and published with the support of the Latvian Peat Producers’ Association (LPPA), and it is aimed at promoting the upgrading of professional skills of those who work in the sector, training of new specialists, as well as rational, maximally effective and responsible utilisation of Latvian peat resources.

The 432-page volume describes draining of mires and their preparation for peat extraction, peat extraction technology, peat extraction site designing, peat transport, environmental protection and fire safety. The book also contains comprehensive information on peat and properties of peat deposits.

Equally important, in addition to these technical matters related to peat extraction, Ansis Šnore has provided an interesting and factually rich insight into the history of peat extraction in Latvia and compiled a list of terms used in the peat sector (Latvian - English and English - Latvian dictionary), previously lacking in Latvia.

The book is addressed to a wide range of readers, from people who are in an early stage of their interest in peat extraction to experienced professionals, teaching staff and students in the peat sector. The book “Peat Extraction” is printed by the publishing house “Nordik”. It will be on sale in major bookstores and it is possible to order it at www.peat.lv (Latvian Peat Producers’ Association).


Sod peat production. Photo: LPPA

The SIS international peat workshop was well attended by delegates from East Africa and Asia. Left to right: Claes Bohlin, Hasselfors Garden; Emmanuel J. Luoga, Tanzania; Nickonia Mwabulca, Tanzania; Alex Mboa, Kenya; Pierre Kalingamire, Peat Energy Co., Rwanda: Åsa Perlerius and Anders Borgmark, Neova. Photo: Ingrid Kyllerstedt

Sharing peat perspectives: A workshop in Sweden

Peat was discussed at a recent international biomass sustainability criteria workshop in Sweden. How peat is perceived and treated in the regulatory framework varies greatly it was revealed.

Hosted by the Swedish Standards Institute, SIS, Swedish companies such as Hasselfors Garden and Neova presented their businesses and shared their certification experiences with invited delegates from East Africa and Asia.

The delegates represented both national standardisation organisations and companies across the peat value chain from Kenya, Tanzania, Uganda, Rwanda, Bangladesh, Indonesia, Cambodia, Laos, Nepal, Pakistan, Sri Lanka and Vietnam.

Åsa Perlerius, the newly appointed Head of Environment for Neova opened the workshop by presenting Neova and their Finnish parent company Vapo Oy. One of the largest solid biomass fuel companies in the Baltic Sea region, Vapo has peat and wood pellet operations throughout the Nordic and Baltic region.

Dr. Anders Borgmark, Head of Prospecting with Neova spoke about their peat operations which span across extraction and processing for

horticulture, animal bedding and fuel markets. He also discussed environmental remediation and mitigation issues including water treatment on peat extraction sites.

"Peat is biomass"

Claes Bohlin, Horticulturist and Quality Manager at Hasselfors Garden, a Vapo subsidiary for the private and professional nursery and garden sector, gave an insight into the firm's peat certification work. He told about the standard for sustainable peat in Sweden and Europe and that EU certification had come up as a Dutch initiative which surprised a few.

"It seems odd that there is no standardisation of energy peat despite having used it here for so long," remarked several delegates.
And they were even more astonished to learn that energy peat has been classified into its own class between fossil and biomass.

"For us peat is biomass," declared an emphatic audience and sceptically questioned the notion that peat is seen as a "slowly renewable" in Sweden and Europe.
"What does that mean? Slow in relation to what? Who came up with this definition, certainly someone who does not know peat," concluded a rhetorical Pierre Kalingamire from Peat Energy Company in Rwanda.

Permitting peat

License and permitting procedures in Sweden, long drawn and complicated by comparison, was another issue that interested delegates.
"Permitting can take up to a decade before everything is cleared," said Anders Borgmark.
"In Pakistan it is the land owner who decides what he wants to do or grow on his land," exclaimed a Pakistani delegate, a statement that other participants acknowledged agreement.
"In Rwanda peat is treated the same as the mining sector, the landowner is compensated when extraction takes place," explained a spokesperson from the Rwandan delegation.

That there is significant common international interest for peat as a resource was evident from the workshop. But just as clear were the differences in how peat is perceived and treated within the various national regulatory frameworks.

Ingrid Kyllerstedt
Svensk Torv
ingrid.kyllerstedt@svensktorv.se

Claes Bohlin during his presentation.
Photo: Ingrid Kyllerstedt

World wide call for information about culture aspects of peat and peatlands

All over the world the use of Peat and Peatlands has left traces spanning thousands of years. From peat bodies and Roman track ways to folklore and family names, peat and peatlands remind us of the physical and cultural environment of millions. Today economic and environmental concerns demand a "Wise Use" of peatlands. Knowledge of the history of the peatlands can help us to understand the questions and demands we are confronted with today.

In Commission VIII we want to emphasize and stimulate the interest in social and cultural aspects of peat and peatlands. That is why we are now sending out a world wide call to get information from all members in the IPS – about cultural aspects of peat and peatland in your countries!

Traditional Spieker restaurant in Bad Zwischenahn, Germany. Photo: Susann Warnecke

Our goal is to make a website where you should be able to find information about everything, from old paintings to beautiful tracks and museums in peat related areas. A lot of useful information, but also stories or articles related to peat and culture.

The Strategy for Responsible Peatland Management

An important question in relation to the Strategy for Responsible Peatland Management (SRPM) is how indigenous people and local communities influence the way peat companies and other stakeholders deal with peatlands. We very much welcome your information on this issue as well.

Peatlands and education

What do children learn in school about peatlands in their biology or geography lessons? Peatlands and education is something we should give much more attention to. See Catharine O'Connell's article in Peatlands International 1/2013. We would like to hear what happens in your country in this field.

Please sit down for a moment…

Please sit down for a moment and think about what information you could provide us with. Or which people you could bring us into contact

with. It doesn't have to be the "world's seven wonders", anything that can help us, is welcome.

We are planning the following "chapters":

- Literature (poetry, fiction, non-fiction)
- History and folklore
- Rights and customs
- Philosophy
- Education
- Visual Art (sculptures, paintings, installations)
- Music
- Museums
- Tourism (trails, parks etc)
- Documentation (photographs, movies etc).

Please send your material to me, the Vice Chair of Commission VIII, Marie Kofod-Hansen, by email: marie.kofodhansen@gmail.com.

Please send text files as word documents and pictures as jpg files. I would like to have your material as soon as possible, by the end of June. We will of course welcome material at any time, but in order to get it all started we need the material as soon as possible.

Commisson VIII already has a website at the following address: www.peatandculture.org. This website will be closed down shortly and the information will be moved and updated at the new web. If you have information about updates, please contact me. We are aware that a lot of updates need to be done!

Looking forward to get a lot of new information about cultural and social aspects on peat and peatlands in your countries!

Marie Kofod-Hansen

marie.kofodhansen@gmail.com

New IPS members

The following individual, student, corporate and research institute members (or their contact persons) have joined the IPS within the previous weeks. The IPS membership list is regularly updated by information from our National Committees or directly from our members (status 12 June 2014).

To see an online list of members (those who have opened their contact information in their personal profiles), log in to the IPS website with your personal user ID and password and go to www.peatsociety.org/members. To join us, visit www.peatsociety.org/join-us or directly contact the National Committee in your country.

Individual members

Japan: Tsuji Nobuyuki, Tanaka Noriyuki, Tanaka Shingo, Shiodera Satomi, Uezu Kazuya, Yamamoto Koichi

Corporate & Institutes

Germany: Arne B. Hückstädt (Industrieverband Garten)
Japan: Yukihisa Shigenaga (Midori Engineering Co.)

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In the Bog 2014

Professor Ian D. Rotherham and colleagues are organising two conferences in 2014 in Sheffield, UK. Both events are sponsored and supported by the UK Peat Society.

Our major 3-day conference **In the Bog – The ecology, landscape, archaeology and heritage of peatlands** will take place on 3rd to 5th September 2014. It will examine the past, present and future of peatland landscapes across the world, bringing together speakers and presentations from a range of disciplines, backgrounds and countries. The conference themes are:

- The history of human activity associated with peatland landscapes – heaths, moors, bogs, fens and commons;
- The ecology and archaeology of peatlands;
- The landscapes of peatlands and their neglected heritage;
- The conservation management of peatlands - problems and issues; and
- The future challenges with climate change and carbon sequestration.

Papers relating to specific small case study areas, species or suites of species as well as those that address the issues at landscape or cultural levels will be presented. Speakers confirmed include: Jack Rieley, Jaanus Paal, Clifton Bain, Benjamin Gearey, Richard Oram, Roxane Andersen, Alper Colak, Andreas Heinemeyer, Phil Newman, John Coll, Nicki Whitehouse, Peter Poschlod, Rob Rose, Jim McAdam and Ian Rotherham. A field visit will form part of the first day's events. There will be plenary and parallel sessions on both Thursday and Friday and a poster presentation session will be held on Thursday afternoon.

The event is sponsored and supported by: BES, IPS UK, IUCN, IUFRO, ESEH, Sheffield Hallam University, Landscape Conservation Forum, Thorne & Hatfield Moors Conservation Forum and JBA Consulting.

Places are limited and pre-booking is essential. More information and a booking form can be found at www.ukeconet.org/event/in-the-bog-conference or email info@hallamec.plus.com or telephone +44 114 272 4227. A special IPS discount also applies, see booking form for details.

The call for papers for the 2015 conference is open. Please submit ideas and proposals (title and short abstract) as a word document to the author.

Christine Handley

Events Co-ordinator, BaLHRI / SYBRG
christine@hallamec.plus.com

Gathering and loading peats from the drying grounds. Cortesy: Ian Rotherham

Peat and peatland events

June

German Peat Society (DGMT)
Conservation and restoration of mires in Thuringia
Oberhof, Germany, 25 - 26 June 2014
www.dgmtev.de

German Peat Society (DGMT) and Alfred Toepfer Academy for Nature Conservation (NNA)
Prospects for Mire Conservation in Lower Saxony
Camp Reinsehlen, Schneverdingen, 25 - 26 June
www.dgmtev.de

6th International Conference on Climate Change
Reykjavik, Iceland, 27 - 28 June 2014
http://on-climate.com/the-conference

July

International Mire Conservation Group
General Assembly and Field Symposium
Belarus, 14 - 26 July 2014
www.imcg.net/pages/events.php

August

9th SER Europe Conference and
Peatland Restoration Sessions
Oulu, Finland, 4 - 8 August 2014
www.ser2014.org

4th International field symposium "West Siberian Peatlands and Carbon Cycle: Past and Present"
Novosibirsk, Russia, 4 - 17 August 2014
More info: Natalia Koronatova, wspcc@mail.ru

International Conference "Problems of Studying and Use of Siberian Peat Resources"
Tomsk, Russia, 18 - 21 August 2014
www.sibniit.tomsknet.ru

IPS Annual Meetings and International Symposium on Peat and Technology
Riga, Latvia, 25 - 29 August, 2014
www.peat2014.lv

September

UK National Committee
'In The Bog' - peatlands as ecological and cultural landscapes
Sheffield, 3 - 5 September 2014
www.ukeconet.org/event/in-the-bog-conference

International Wetlands Conference 2014
Huesca, Spain, 14 - 18 September 2014
www.wetlands2014.eu

German Peat Society (DGMT)
Utilisation of Peatlands for Tourism and Environmental Education
Bad Wurzach, Germany, 24 - 26 September 2014
www.dgmtev.de

October

Irish Peat Society
Mountain Blanket Bog Symposium
Wicklow, Ireland, October 2014

IUFRO 2014 World Congress
Sustaining Forests, Sustaining People.
The Role of Research
Salt Lake City, USA, 5 - 11 October, 2014
http://iufro2014.com

8th European Ramsar Meeting
Austria, Kufstein, 20 - 24 October, 2014
www.ramsar.org

2015

IPS Annual Meetings
Tullamore, Ireland, 7 - 12 June 2015

Next issue...

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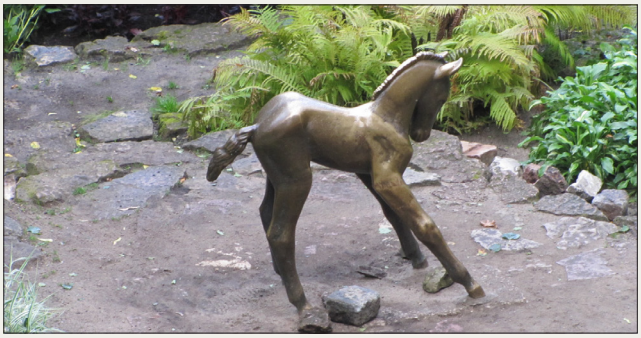
Submission deadline for PI 3/2014: 1 August

Give us quick feedback to this magazine: www.bit.ly/17VfJF2 or by email to ips@peatsociety.org.



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