

Paludiculture Newsletter

With this newsletter the Greifswald Mire Centre (GMC) aims to keep a growing community informed on peatlands and paludiculture. You will find news from research, practice, politics, as well as announcements of conferences and other events and recommended publications. Sign up per e-mail to communication@greifswaldmoor.de for upcoming issues! The newsletter is currently provided by the BOnaMoor project coordinated by the Greifswald Mire Centre and financed by the German Federal Ministry of Food and Agriculture through the Agency for Renewable Resources (FNR).

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1. General information and news on peatlands and paludiculture

1.1. Peatland and climate research at the GMC under measures against corona virus

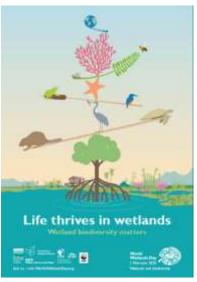
Due to the current spread of the corona virus in Germany, the employees of the Greifswald Mire Centre are taking measures to protect all those potentially affected. The premises of the GMC partners are currently closed, most of the employees are in home office (#containment). However, we are continuing our commitment to peatlands, rewetting and paludiculture - among other things by sending this newsletter '- and can be contacted via phone, e-mail or skype. The GMC is looking ahead with confidence and is already organising the next RRR conference 2021 (see 3.2.1.). We wish all those interested in paludiculture a good reading. Stay healthy!

1.2. World Wetlands Day 2020

On the occasion of the World Wetlands Day (WWD), the Greifswald Moor Centrum offered three times "Join in and Experience" around peatlands on Saturday, February 1st, 2020. This gave people in the region the opportunity to find out more about peatlands and to help preserve them.

Around 30 volunteers lent a hand in the hands-on campaign in Mannhagener Moor between Greifswald and Stralsund on Saturday, February 1st. The task was to cut and remove wood to create habitat for cotton grass, sundew or the rare mother-of-pearl butterfly. The hands-on activities in Mannhagener Moor, an area under the responsibility of the Succow Foundation, help to develop the moor again into an intact biotope.

On the same day, the Succow Foundation invited visitors to the <u>Karrendorfer Wiesen</u> for a free tour of around three hours. Along the



1 Poster of WWD2020

embankment, around 40 visitors could observe thousands of herons and mountain ducks on Lake Kooser, first groups of iron ducks on the island of Koos or geese on the salt grassland. The traveling exhibition "Moor, climate protection and paludiculture" of the Greifswald Moor Centrum was officially opened on February 1st in the chalk hall of the Königsstuhl National Park Center. It explains why intact peatlands are climate savers and how they can be used sustainably, and can be seen there until the end of March.

1.3. Peatlands and CAP - New position paper to keep digital contact

Instead of meeting Members of European Parliament – one of the many events cancelled due to the current Corona pandemic – GMC together with many partners distributed a <u>new position paper on peatlands and the EU's Common Agricultural Policy (CAP)</u>. The main target is to facilitate the new environmental ambitions of the Post-2020 Common Agricultural Policy (CAP) and to create coherence between agricultural and climate policies by safeguarding and stimulating the preservation of carbonrich soils through protection of peatlands. The paper summarises current knowledge and lists solutions and recommendations, and has been compiled together with more than 20 research institutions and NGOs from across the EU. The event in the European Parliament, which was to be hosted by MEP Peter

Jahr and MEP Michal Wiezik and organised jointly by the Greifswald Mire Centre (GMC), the <u>Interdisciplinary Research Centre for Baltic Sea Region Studies (IFZO)</u>, the <u>National University of Ireland Galway</u> and <u>Wetlands International</u>, can be hopefully held later this year.

2. A paludiculture project presented: OptiMOOS

Optimising Sphagnum farming – a new joint project



2 Spontaneous establishment of cattail in the irrigation ditch at the Sphagnum farming site in the peatland Hankhauser Moor (Photo: G. Gaudig)

One type of paludiculture on bogs is Sphagnum farming. Here, peat mosses (*Sphagnum*) are cultivated for the production and harvesting of biomass, e.g. to produce a renewable raw material for the production of high-quality horticultural substrates. Since 2004, experiments have been carried out worldwide to research, develop and implement Sphagnum farming. They confirmed that Sphagnum farming is feasible on cut-over bogs and on bogs formerly used as grassland. At the same time, the improvement of ecosystem services has been demonstrated: significant reduction of greenhouse gas emissions compared to the drainage-based previous use, water and nutrient retention and local cooling have been achieved. Also, the Sphagnum farming sites represent a valuable surrogate habitat for rare, bog-typical species.

However, this still young type of agriculture also raises many new questions. In the joint project 'OptiMOOS', which was started at the end of 2019, Sphagnum farming is to be optimised further, especially with regard to water management and climate impact.

Since 2011, Sphagnum farming sites have been established on former bog grassland in the peatland Hankhauser Moor, north of Oldenburg (Lower Saxony) together with the peat company Torfwerk Moorkultur Ramsloh GmbH & Co. KG (previous projects MOOSGRÜN, MOOSWEIT, MOOSzucht). Meanwhile they cover 14 hectares. Although the biomass growth of the peat mosses is very high, other than the target peat mosses species were promoted due to nutrient-rich conditions. Therefore, strategies for nutrient reduction in the water used for irrigation of Sphagnum farming sites are being developed in the joint project and tested in glasshouse and field trials. For this, also other paludiculture



3 GMC-scientist Anja Prager explaining field tests on Sphagnum farming (Photo: W. Wichtmann)

crops (e.g. cattail, reed), but growing under nutrient rich conditions, will be used. Potentials for reducing the climatic impact of Sphagnum farming sites are the reduction of topsoil removal during site preparation and the proportion of ditches, as most greenhouse gases are emitted from the ditches. As a result of the joint project, both nutrient discharges to surface waters (by increasing nutrient retention and removal) and greenhouse gas emissions are further reduced by a Sphagnum farming site. At the same time, the

long-term effects of establishment, growth and regeneration of a peat moss lawn on the existing Sphagnum farming sites will be further investigated, also with regard to biodiversity (flora, fauna) and economy. In addition to the implementation of Sphagnum farming, it is planned to develop a substrate consisting of biomass from paludiculture plants. For the 4th of September 2020 a public information day in cooperation with the MoKli project is planned at the site.



The joint project will be carried out until the end of 2022 by the universities of Greifswald, Rostock and Oldenburg and probably by the Teaching and Research Institute for Horticulture Hannover-Ahlem. The project is funded by the Ministry for Environment, Energy and Climate Protection of Lower Saxony and the European Regional Development Fund (ERDF) via the NBank as project management agency for the Lower Saxony funding programme "Climate Protection by Peatland Development". Please find further information on the project homepage www.moorwis-point

sen.de/optimoos en.

Author: Greta Gaudig, project coordinator OptiMOOS

3. News from other paludiculture projects

This section compiles news from current projects and initiatives on paludiculture from various regions and countries.

3.1. Projects internationally

3.1.1. Carbon farming with Sphagnum – "Care-Peat"-project setting up pilot

As part of the <u>Interreg project "Care-Peat - Restoring the carbon storage capacity of peatlands"</u> the Lancashire Wildlife Trust (LWT) is working with partners to create a carbon farm on their pilot site at Winmarleigh. The 4ha carbon-farm will grow a permanent, non-harvested cover crop of *Sphagnum*



4 Area at Winmarleigh prior to installing the carbon farm (Photo: J. Bennion)

mosses, in order to protect carbon already stored in the soils and capture further carbon from the atmosphere. This will be achieved through raising the water table through blocking drains and the removal of the nutrient- and seed-rich organic top soil that has formed over the peat. The site will then be planted with Sphagnum moss species. The carbon farm is located on a former lowland raised bog that was drained for agriculture in the 1970s to hold livestock and cultivate winter feed crops. It borders LWT's lowland raised bog Winmarleigh Moss SSSI¹ nature reserve, near Garstang, Lan-

cashire. Winmarleigh and Cockerham Moss SSSI is Lancashire's best example of a lowland raised bog. Drained and historically exploited for peat extraction, the bog suffered serious degradation until Lancashire Wildlife Trust first bought some of it in 2010 to safeguard the endemic plants and animals, and began restoring the invaluable landscape. The Trust now manages 89.5 ha in total within the SSSI. The carbon farm within the Interreg project "Care Peat" aims to demonstrate the new opportunities

¹ SSSI - Site of Special Scientific Interest in Great Britain

this alternative land management offers to farmers and landowners of peatland sites, and the pilot will also be assessing the benefit of re-wetting this buffer zone area of an adjoining SSSI nature reserve both in terms of carbon and biodiversity as well as water storage.

The carbon farm will start at the end of March. Here an article about the pilot and also works that have started on an adjacent nature reserve: https://www.lancswt.org.uk/news/work-starts-carbon-capturing-peat-bog



"Care-Peat" is a multinational EU-funded Interreg initiative in which experts from five countries address this goal by investigating new methods to reduce carbon emissions and restore the carbon storage capacity in European peatlands

Author: Sarah Johnson, Lancashire Peatlands Initiative Project Manager, The Wildlife Trust for Lancashire, Manchester and North Merseyside

3.1.2. Focus on climate and organic soils in Denmark

Denmark is currently focusing on climate and organic soils and their rewetting. The country at present has approx. 130.000 ha in crop rotation and 40.000 ha with permanent grass on organic soils with >6 % carbon.

The Danish agricultural consultancy SEGES has issued a status about rewetting projects on 7,643 ha of organic soils in Denmark over the last five years and is stressing several related challenges (Filsø, S. S. (12/2019): ERFARINGER FRA LAVBUNDSORDNINGEN, Udtagning af kulstofrige jorde som klimavirkemiddel – Danish only). Of these 7,643 ha 33 % (2.522 ha) potentially have phosphorus leaching problems and can't be rewetted at the moment. The state provides funding for climate protection projects on organic soils amounting to ca. 270 million Euro over the next 10 years.

Instruments among others will include land consolidation, land swop and multifunctional land distribution the next years. On the website http://www.vådområder.dk (Danish only) landowners willing to participate in rewetting projects can find information. On the website http://miljoegis.mim.dk/cbkort?&profile=vandprojekter Danish farmers can see if they have organic

5 Example of analysing farmland using http://miljoegis.mim.dk/cbkort?&profile=vandprojekter

soils above 6 % organic matter in relation to their fields.

This information was comprised by the editors based on information by Frank Bondgaard, specialist in Construction & Environment at the Danish Agriculture & Food Council F.m.b.A. SEGES. He is currently preparing a fact sheet in Danish about growing paludiculture. Thus, a more detailed contribution is planned in one of the upcoming issues.

3.1.3 Finnish travel report on study trip to paludiculture sites in Germany

In the Finnish journal Suo, issue 70 (2019), Leila Korpela, Sakari Sarkkola, Tapio Lindholm and Harri Vasander report on the study trip by Finnish peatland scientists and students to paludiculture sites in the northeast of Germany after having visited the GMC scientists' research area for Sphagnum farming in Hankhauser Moor near Oldenburg (Lower Saxony). The full length travel report (in Finish) is available at: http://www.suo.fi/pdf/article10321.pdf

3.2. Paludiculture projects from Germany

3.2.1. Save the Date: RRR2021



6 Save the date: let's talk about paludiculture from $9^{\rm th}$ to 11th March 2021 at RRR2021 conference in Greifswald

In the light of the great potential of peatland rewetting for climate change mitigation, innovative land use concepts for wet peatlands are crucial. Previous RRR conferences on the utilisation of wet peatlands (paludiculture) have been held in 2013 and 2017 in Greifswald. The partners in the Greifswald Mire Centre warmly invite you to continue this dialogue and to use the next conference on "Renewable resources from wet and rewetted peatlands" from March 9th - 11th 2021 at Greifswald as a platform for exchange. More information upcoming at www.rrr2021.com.

3.2.2. CANAPE-Project set up Sphagnum farming at Barver

The four-year Interreg project CANAPE promotes the exchange of experience and the cooperation of various partners within the North Sea region to improve peatland management. The project focuses on the development and dissemination of alternative management methods for maintaining and restoring important ecosystem services in peatlands.

The main task of the German project partners is to set up a Sphagnum farm as an example of climate-friendly wet bog use in Barver (Diepholz district, Lower Saxony). . Since December 2019 9 hectares of bog grassland have been transformed into another demonstration and test area for wet, peat and climate-friendly form of agriculture on bogs.

The levelling of the first polder area for Sphagnum farming (0.96 ha) was completed in just three weeks – very carefully and precise to the centimeter. The water level in the irrigation ditches rose visibly during the ongoing earthworks, indicating a sealed polder sole and a prerequisite for an evenly moist surface for the production of *Sphagnum*.

In addition, a water reservoir with a capacity of 2,500 m³ was excavated and sealed with foil. It is used to irrigate the polders in the case of severe drought and is fed from groundwater and drainage water of the surroundings. A lot of less noticeable but just as important details had to be done such as the power supply, the laying of almost 1 km of water pipes as well as the cutting of an unexpectedly large number of drainage pipes. These became visible only when the top soil was removed. The priority for

the upcoming months is to prepare the measure and control technique and the irrigation system. At the end of March / beginning of April, the final icing on the cake will follow with the application of peat moss fragments. For the entire construction work there are estimated costs of around 250,000 Euro, funded by the EU in the CANAPE Interreg project. Local residents, farmers and experts have so far been very interested in and positive about the site, thanks to intensive participation processes and press work.

With the starting establishment of the peat moss lawn – probably in the middle of the year – the management and development of the site, the search for possible applications of the produced *Sphagnum* biomass and test of adapted machines will start. This will create knowledge for a new chapter in agriculture, for which little experience exists in the northwest region so far. Medium-term, the district and the nature conservation foundation expect the facility to become a magnet for experts.

The drained and superficially degraded grassland site of Barver is not easy, but is typical of many dry "Geestmoore" in northwest Germany. As a wet agricultural used buffer zone, the Sphagnum farm optimally fits into local rewetting planning and offers surrogate habitats for bog animal and plant species at the same time.



7 Starting top soil removal at Barver (Photo: J.-U. Holthuis)



8 Precise top soil removal and installation of irrigation ditches for the Sphagnum farm (Photo: J.-U. Holthuis)

The planning process for the Sphagnum farm included many collegial tips, as for example tips on the irrigation systemor minimization of top soil removal. There were practical suggestions from GMC scientists and the peat company Torfwerk Moorkultur Ramsloh from their experiences with Sphagnum farming in the peatland Hankhauser Moor (Ammerland district, same federal state) or from the peat company Klasmann-Deilmann from their project in Emsland Drenth, which were implemented by the planning office Hofer & Pautz.

Prior to implementation it took almost two years of expert assessment, obtaining permits, passing the water law procedure and planning the construction (download of the plans at https://northseare-gion.eu/canape/output-library/). Temporarily, for financial reasons, the originally planned execution had to be rescheduled from a one step into a two-stage expansion of the proposed polder areas.

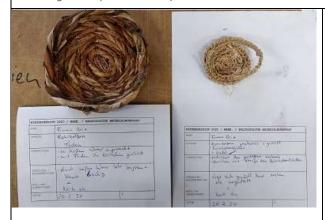
Author: Dr. Jens-Uwe Holthuis, project leader NSRP CANAPE at Stiftung Naturschutz in county Diepholz / Lower Saxony

3.2.3. Paludi & Design

Braiding cattail leaves, felting seed hair, cooking peat moss - at the end of February, 15 art and design students at Burg Giebichenstein University of Art and Design Halle (die BURG) experimented with material from paludiculture plants. Small baskets, innovative seating and new fabrics were created in this first workshop in cooperation between the Greifswald Mire Centre and the Burg Giebichenstein University of Art and Design Halle. The sustainable raw materials are interesting for the designers since they have not been explored in art so far. At the same time the materials meet their standards of climate friendliness. The GMC values this cooperation as an opportunity for new ideas with chic and well-reviewed manufacturing chains for paludicultural products. In an accompanying public lecture, the GMC gave an introduction to the diverse world of peatlands, especially rewetted areas, and the use of paludiculture biomass.



9 Workshop "Paludi & Design" in the workshops of Burg Giebichenstein University of Art and Design Halle (Photo: S. Abel)



10 First results after experimenting with material from paludiculture (Photos: S. Abel)





3.2.4. BOnaMoor

Emission values during the combustion of fen biomass

Comparative combustion tests of different fen biomass in the heating plant in Malchin (see Paludiculture Newsletter 01/2020) within the <u>BOnaMoor-project</u> could show that the emission values for burning pelletized fuels are significantly lower than for loose stalks, but pelletized biomass entails an increased risk of slagging in the boiler. When using fen biomass the emission values are higher compared to wood-like fuels (wood chips). Compared to the combustion tests with straw, the fen biomass proved to be more suitable to reliably comply with the thresholds specified in the 'TA Air'. During the Rostock Bioenergy Forum in June 2020, the results of the measurement campaigns carried out so far will be presented in detail.

Wet biomass caused damage to the heating plant

In October 2019, wet meadow biomass was harvested to investigate the fuel quality at a very late harvest date. The harvest proved to be difficult due to high rainfall and flooded areas. The combustion of the harvested biomass at the Malchin heating plant led to high wear on filter tubes. To prevent this kind of damage, subsequent drying, processing into pellets or storage until the next heating period, during which time the biomass has the opportunity to dry further, is recommended.

Biomass sampling finished

In the BOnaMoor project, the last permanent study plots for biomass (each 1m²) on the four project areas were harvested in January 2020. Thus, the harvesting season was completed. The yield, water content and proportions of sweet and sour grasses and the remaining herbs are determined. In the laboratory the content of elements such as nitrogen, phosphorus and potassium, but also the heavy metals mercury and arsenic will be analysed - according to the study site, harvest period and plant family.

The content of some combustion-critical elements changes over the course of the year. The data collected late in the year will provide information on the combustion properties compared to biomass from other harvest dates. Thus, the optimal harvest period can be concluded. It will still take some time to evaluate all biomass samples in the laboratory. Due to the high number of samples the results are expected in summer 2020.



11 Project site "Knick_left" in January 2020; wooden slates mark the plot (Photo: M. Wenzel)



12 Sampling of a 1m² single plot in January 2020 at the project area "Fangstand" (Photo: M. Wenzel)

4. Events on peatlands and paludiculture

2024.04.2020	TISOLS 10th International Symposium on Land Subsidence,
postponed to 2021	The Netherlands, www.tisols2020.org
•	
21.04.2020	Conference on peatland management, Bad Oldesloe / Metropolitan region
	Hamburg https://metropolregion.hamburg.de/natur/13676786/moor-management/
00.00.05.0000	
0308.05.2020	EGU General Assembly 2020, Vienna, cancelled as personal meeting; use of
	video facility instead https://egu2020.eu/sharing_geoscience_online.html
27.05.2020	Lower Saxony conference on paludiculture, 3N Competence Center Lower
	Saxony Network Renewable Resources and Bioeconomy, <u>www.3-n.info</u>
0711.06.2020	RE3 Conference "From Reclaiming to Restoring and Rewilding", joint con-
postponed to 2021	ference of Canadian Land Reclamation Association (CLRA), the Society for
	Ecological Restoration (SER) and the Society of Wetland Scientists (SWS),
	Quebec, Canada, http://www.re3-quebec2020.org/
1420.06.2020	International Peatland Congress 2020, Tallinn, Estonia
postponed to 2021	www.ipc2020.com
16./17.06.2020	Bioenergy Forum Rostock https://www.3-n.info/news-und-termine/veran-
	staltungen/veranstaltungen-dritter/14-rostocker-bioenergieforum.html
28-30.06.2020	"Restoring peatlands for climate", Riga, organised by the EU LIFE Peat Re-
	store-project
30.0602.07.2020	6th IAHR Europe Congress, Warsaw, Poland; https://iahr2020.pl/
postponed to Sep 20	
2428.08.2020	Eurosoil2020, Geneva, https://eurosoil2020.com/wp-content/up-
	loads/2020/01/Eurosoil-2020-Geneva-Sessions-Descriptions-V4.pdf
31.0804.09.2020	SER Conference "A NEW GREEN DEAL FOR EUROPE'S NATURE. Science and
31.00. 01.03.2020	political action towards socio-ecological restoration", Alicante, Spain,
	www.sere2020.org
1417.09.2020	6th IAHR Europe Congress, Warsaw, Poland; https://iahr2020.pl/
	Symposium "Mires of Northern Eurasia: biospheric function, diversity,
1418.09.2020	management", Petrozavodsk, Russia, mire2020@krc.karelia.ru; abstract
	submission deadline: 01.06.2020
1823.10.2020	
1625.10.2020	11th INTECOL International Wetlands Conference, Christchurch, New Zealand; http://www.intecolwetlands2020.co.nz/intecol20
00 11 02 2021	
0911.03.2021	RRR2021 – Conference on "Renewable resources from wet and rewetted
	peatlands", Greifswald, Germany, <u>www.rrr2021.com</u>
1721.05.2021	TISOLS 10th International Symposium on Land Subsidence,
	The Netherlands, <u>www.tisols2020.org</u>

1924.06.2021	RE3 Conference "From Reclaiming to Restoring and Rewilding", Quebec,
	Canada, http://www.re3-quebec2020.org/

5. Literature

5.1. Scientific paper

Buschmann, C., Röder, N., Berglund, K., Berglund, Ö., Laerke, P.E., Maddison, M., Mander, Ü., Myllys, M., Osterburg, B., Akker, J.J.H. van den (2020): Perspectives on agriculturally used drained peat soils: Comparison of the socioeconomic and ecological business environments of six European regions. Land Use Policy, Vol. 90. doi.org/10.1016/j.landusepol.2019.104181

Gribbe, S., Blume-Werry, G., Couwenberg, J. (2020): Digital, three-dimensional visualization of root systems in peat. Soil Systems, 4, 13. doi: 10.3390/soilsystems4010013

Huth, V., Günther, A., Bartel, A., Hofer, B., Jacobs, O., Jantz, N., Meister, M., Rosinski, E., Urich, T., Weil, M., Zak, D., Jurasinski, G. (2020): Topsoil removal reduced in-situ methane emissions in a temperate rewetted bog grassland by a hundredfold. Science of The Total Environment. 721, 137763. doi: 10.1016/j.scitotenv.2020.137763

Jurasinski, G., Ahmad, S., Anadon-Rosell, A., Berendt, J., Beyer, F., Bill, R., Blume-Werry, G., Couwenberg, J., Günther A., Joosten H., Koebsch F., Köhn D., Koldrack N., Kreyling J., Leinweber P., Lennartz B., Liu H., Michaelis, D., Mrotzek, A., Negassa, W., Schenk, S., Schmacka, F., Schwieger, S., Smiljanic, M., Tanneberger, F., Teuber, L., Urich, T., Wang, H., Weil, M., Wilmking, M., Zak, D., Wrage-Mönnig, N. (2020): From understanding to sustainable use of peatlands: the WETSCAPES approach. Soil Systems, 4, 14. doi: 10.3390/soilsystems4010014

Kasak, K., Valach, A.C., Rey-Sanchez, C., Kill, K., Shortt, R., Dronova, L.I., Mander, Ü., Szutu, D., Verfaillie, J. Baldocchi, D.D. (2020): Experimental harvesting of wetland plants to evaluate trade-offs between reducing methane emissions and removing nutrients accumulated to the biomass in constructed wetlands.pdf. Science of The Total Environment. doi.org/10.1016/j.scitotenv.2020.136960

Michaelis, D., Mrotzek, A., Couwenberg, J. (2020): Roots, tissues, cells and fragments—how to characterize peat from drained and rewetted fens. Soil Systems, 4, 12. doi: 10.3390/soilsystems4010012

Mrotzek, A., Michaelis, D., Günther, A., Wrage-Mönnig, N., Couwenberg, J. (2020): Mass balances of a drained and a rewetted peatland: on former losses and recent gains. Soil Systems, 4, 16. doi: 10.3390/soilsystems4010016

Wichmann, S., Krebs, M., Kumar, S., Gaudig, G. (2020): Paludiculture on former bog grassland: Profitability of Sphagnum farming in North West Germany. Mires and Peat, 26, Art. 08, 1–18. doi: 10.19189/Map.2019.SNPG.StA.1768

Yamulki, S., Peace, A. J., Naderson, R., Morison J. I. (2012): Soil CO2, CH4, and N2O fluxes from an afforested lowland raised peatbog in Scotland: implications for drainage and restoration. Biogeosciences Discussions, 9(6), 7313-7351. DOI: 10.5194/bgd-9-7313-2012

5.2. Information paper

<u>Policy Brief "Peatland Strategies in Europe"</u> from BfN, Ramsar, UN environment programme, GPI, Succow Foundation (partner in the GMC)

Position paper on <u>"Peatlands in the EU's Common Agricultural Policy (CAP) after 2020"</u> from GMC, National University of Ireland Galway and Wetlands International

5.3. Other publications

Hill, Chris (7.3.2020): <u>Could wet farming and 'paludiculture' help solve the climate challenge in the Fens?</u> Eastern Daily Press.

Krimohove, P. (März 2020): Neues Nass. Forschungsfelder 1/2020.

Niyogi, D. G. (20.3.2020): Protecting peatlands can help attain climate goals. DownToEarth.

Schwenkenbecher, J. (22.3.2020): <u>Wie Moore beim Kampf gegen den Klimawandel helfen</u>. Süddeutsche Zeitung.

Further new publications on peatlands and mires, restoration and rewetting of peatlands as well as nature conservation can be found in the IMCG bulletins, which are regularly published on the IMCG homepage: http://www.imcg.net/pages/home.php

The compilation of this newsletter was funded by the BOnaMoor project and supported by the Greifswald Mire Centre. The BOnaMoor project is conducted by the University of Greifswald, partner in the Greifswald Mire Centre, and financed by the Federal Ministry of Food and Agriculture (BMEL) through the Agency for Renewable Resources (FNR).









