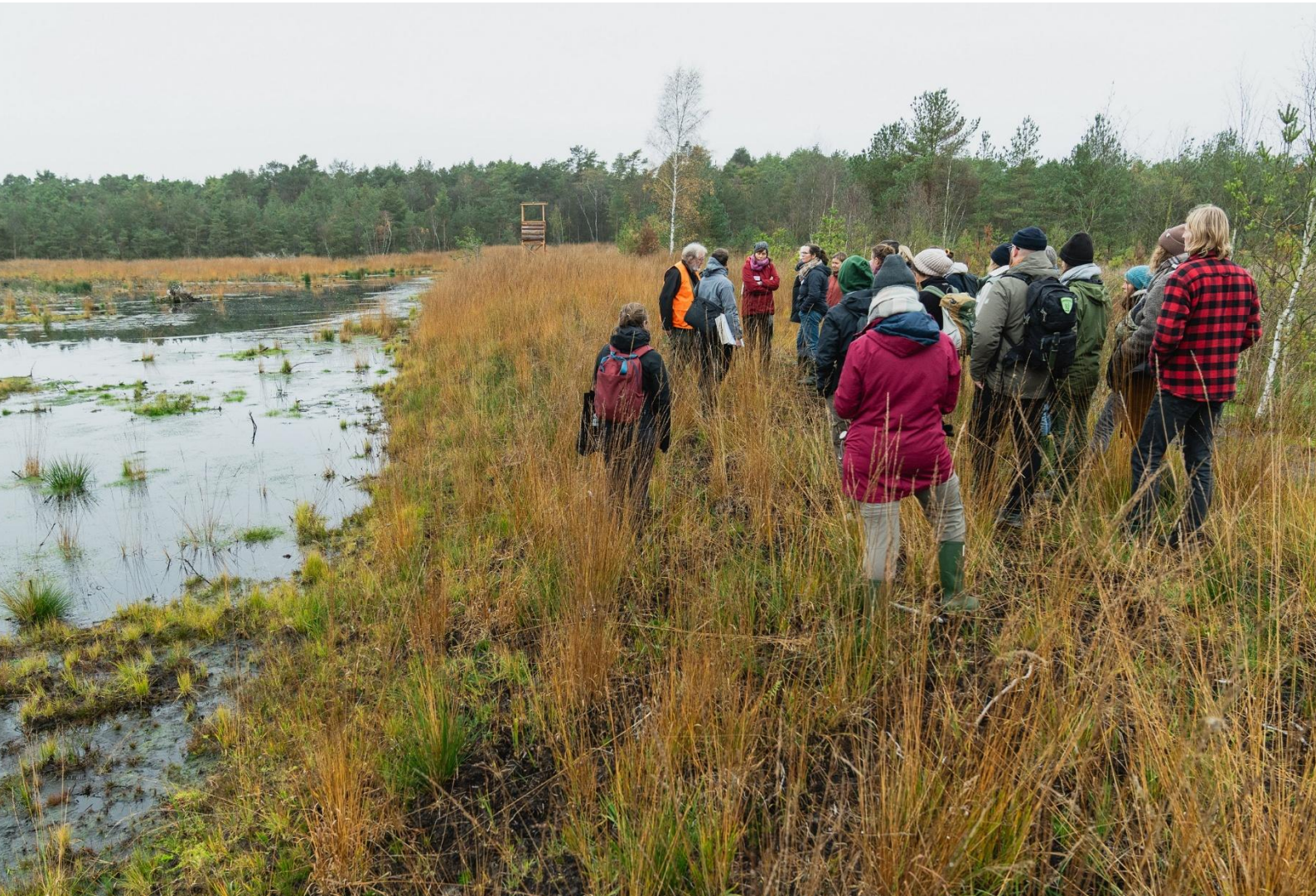
GREIFSWALD
MIRE
CENTRE

ANNUAL REPORT 2024



Cover photo (S. Hirschelmann): Excursion to Grambower Moor. Mecklenburg-Vorpommern.

Introduction

The Greifswald Mire Centre (GMC) is a partnership between the University of Greifswald, the Michael Succow Foundation and DUENE e.V. The GMC was founded at the beginning of 2015 through a cooperation agreement between the three partners. This annual report summarises the development of the Greifswald Mire Centre in its eighth year of existence, presents significant progress on the GMC's key topics and outlines developments at the GMC. The activities of the GMC are divided into:

1. Communication: Increasing the visibility of peatlands and their importance
2. Consulting & Participation: Peatland protection around the world
3. Implementation: Rewetting of own and project areas
4. Research: Creating knowledge
5. Networking: Strengthening cooperation, expanding networks

You can find an overview of key events at the GMC here.

In the year it was founded in 2015, approximately 50 people worked on peatland-related projects with at least one partner in the GMC; by the end of 2024, this number had risen to approximately 120.

The peatland-related activities of the GMC partners are mainly financed by third-party funds and donations (Tab. 1). Thanks to the approval of several 10-year and other third-party funded projects, a total of approximately EUR 17.04 million was raised by all partners in 2023. Numerous new peatland projects were also approved in 2024, meaning that the total funds raised by the partners, amounting to EUR 15.45 million, remain at a consistently high level.

Table. 1. Third-party funds, donations and prize money raised at the Greifswald Mire Centre since 2016 (in Mio. euros)

	2016	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**
Third party funds	1,49	4,51	3,70	5,78	1,40	3,90	4,65	16,81	14,41
Donations and prize money	0,08	0,08	0,10	-	0,01	0,64	0,28	0,23	1,04
Total	**1,57**	**4,59**	**3,80**	**5,78**	**1,41**	**4,54**	**4,93**	**17,04**	**15,45**

1. Communication

Lots of attention for peatlands.

The German Environmental Award is presented annually by the German Federal Environmental Foundation (DBU) and is one of the most highly endowed awards of its kind in Europe. The **2024 German Environmental Award** was given to Greifswald peatland researcher PD Dr. Franziska Tanneberger, director of the GMC. She is considered a driving force in the revitalisation of peatlands and a bridge-builder between science, politics, and agriculture. The award was presented on October 27, 2024, by Federal President Frank-Walter Steinmeier in a major ceremony in Mainz. The award ceremony was broadcast live on the internet. This honor generated very significant media attention not only for the award winner herself, but especially for “her” topic—peatlands. Franziska Tanneberger plans to use the prize money to fund further research and implementation projects focused on climate and biodiversity protection in peatlands and their sustainable use.

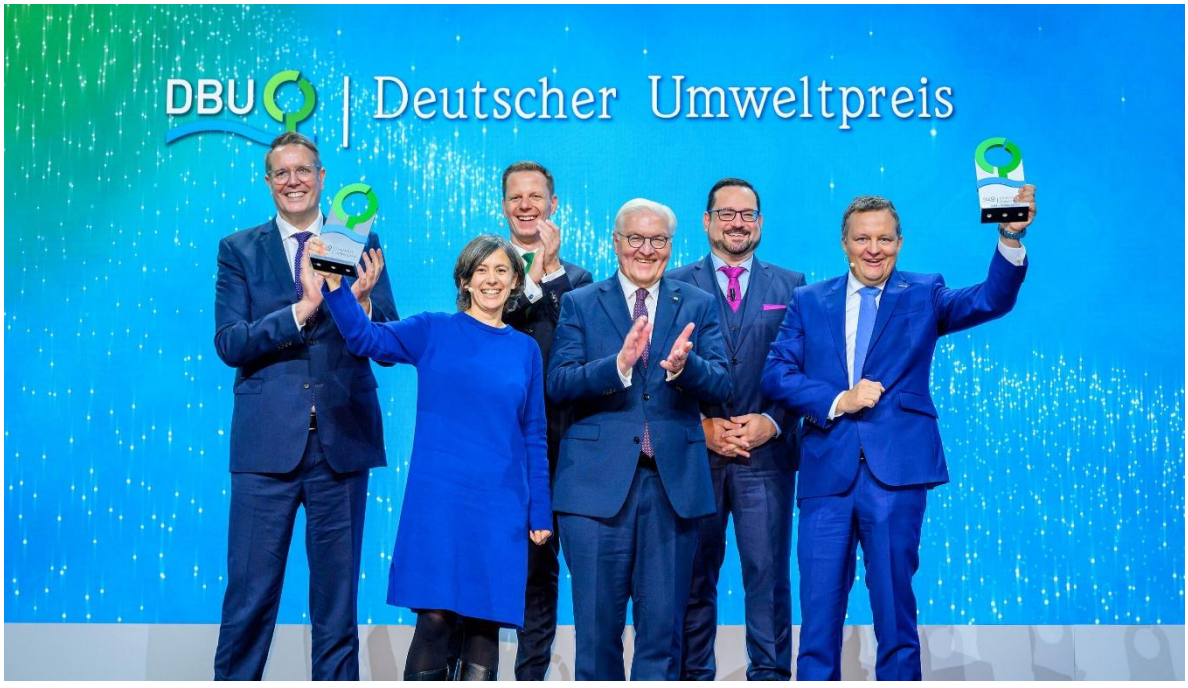


Fig. 1. German Environmental Award 2024. From left to right: Alexander Schweitzer (Minister-President of Rhineland-Palatinate), Dr Franziska Tanneberger (Director of the GMC, award winner), Prof. Dr. Kai Niebert (Chairman of the DBU Board of Trustees), Frank Walter Steinmeier (Federal President), Alexander Bonde (DBU Secretary General), Thomas Speidel (Managing Director of ads-tec Energy, award winner) (Photo: Peter Himsel/ DBU).

Manuela Schwesig, Minister-President of Mecklenburg-Western Pomerania, praised Franziska Tanneberger as "*...an extraordinary woman who has made her scientific home in the Hanseatic and university city of Greifswald. She is impressively committed to climate and environmental protection and is considered a driving force in the revitalisation of peatlands. With her scientific and economic approach, Dr Tanneberger builds bridges between science, politics and agriculture. This has rightly earned her worldwide recognition. I got to know and appreciate her as co-chair of the Future Council*

during the last legislative period. The Future Council has developed recommendations for action for the state government that influence our political work. Her knowledge, commitment and energy are unparalleled. I was delighted that she was awarded the German Environmental Prize and congratulate Dr Tanneberger from the bottom of my heart. She is a role model for all scientists in our state and far beyond."

In 2024, coverage of peatlands in connection with the GMC was similarly extensive as in the previous year and was also picked up by many national media outlets such as FAZ, Frankfurter Rundschau, Spiegel, ARD and the dritten Programme (see GMC press review). In the television programme ZDF Magazin Royal on the subject of 'houseplants', Greta Gaudig explained the consequences of using peat to the presenter, Jan Böhmermann.

In 2024, six volumes were published in the **GMC series**, primarily featuring results from the MoKKa project, which is being carried out by GMC partners Succow Foundation and the University of Greifswald in collaboration with the German Baltic Sea Nature Conservation Foundation. While Lemke & Hirschelmann (2024) summarise the legal framework as areas of action and levers for the rewetting and use of peatlands, Schlacke & Sauthoff (2024) analyse legal issues related to peatland rewetting in depth. Uhl et al. (2024) highlight the importance of spatial planning as a tool for peatland soil protection, using Mecklenburg-Western Pomerania as an example. The proceedings of the Peatland Education Symposium were also published in the GMC series (Feldmann & Kötting-Gerkens, 2024) to highlight the enormous importance of peatland education in schools. The fifth volume is a comprehensive palaeoecological and geomorphological analysis of the Friedländer Große Wiese, the largest peatland complex in Mecklenburg-Western Pomerania (de Klerk 2024). Finally, the guide to implementing paludiculture, published in 2022, was published in English as the sixth volume in 2024 (Nordt et al. 2024).

In order to shed light on individual aspects in more detail, the GMC researches and condenses facts and uses them to create short information papers. In 2024, in cooperation with other institutions, an information paper on the peatlands in Brazil and another on paludiculture and biodiversity were published. As a result of the ALFAwetlands project, the Succow Foundation, Wetlands International and other partners published a policy brief with country profiles on wetlands in Europe.

The GMC has set itself the goal of publishing its paludiculture newsletter at least quarterly or more frequently. In 2024, five newsletters were produced, with 772 subscribers at the end of the year.

In 2024, the GMC decided to discontinue its use of Platform X (formerly Twitter) for social media. Instead, information was shared on Bluesky, Instagram, Facebook and LinkedIn. The number of subscribers to these GMC accounts rose rapidly following the departure from X. Current information and publications were also made available as usual on the GMC's own websites, www.moorwissen.de and www.greifswaldmoor.de.

Explaining peatlands to the public and making them more visible is an important concern of the GMC. For this reason, the GMC was represented at major trade fairs in 2024 or contributed information and exhibits. At the International Green Week in Berlin, the two Federal Ministries for the Environment and for Agriculture, together with the Thünen Institute, presented peatlands and peatland conservation as a central focus. In June 2024, the DBU and the Federal President hosted the Week of the Environment in Berlin. Around 190 exhibitors from business and technology, research and science, as well as civil society presented their innovative solutions for environmental protection in the park of Bellevue Palace, including the University of Greifswald, a partner in the GMC, with a joint stand together with the Agency for Renewable Resources (FNR) (Fig. 2). In addition, many other exhibitors presented the topic of peatlands, representing a noticeable increase compared to previous Weeks of the Environment. One of the numerous expert forums was

organised by the Succow Foundation, a co-sponsor of the toMOORow Initiative, and addressed the topic “Peatlands as superheroes in the fight against the climate crisis: potentials and opportunities of peatland climate economy.”

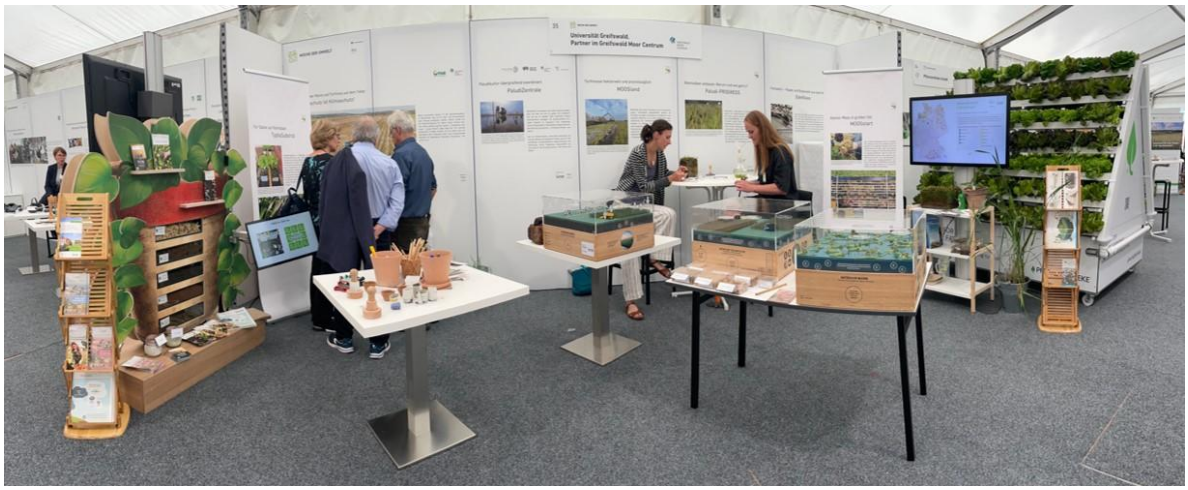


Fig. 2. Joint stand of the GMC and FNR at the Environment Week in Berlin. (Photo: Greta Gaudig).

GMC as a magnet for exchange on peatland issues.

Numerous national and international cooperation partners and interested parties from science, art and culture, politics, administration, and NGOs came to Greifswald in 2024 to exchange ideas with the GMC on peatland-related issues. A delegation from the University of Helsinki visited for several days to learn more about the GMC and its project sites, such as the cattail cultivation area in Neukalen and the Karrendorfer Wiesen near Greifswald. The Finnish colleagues also brought a bus full of peatland-related books for the peatland library. Members of the German Bundestag Britta Haßelmann (parliamentary group leader of Alliance 90/The Greens), as well as Anna Kassautzki and Sabrina Repp (both SPD), and Ines Schwerdtner (chair of Die Linke) gathered information on rewetting and paludiculture. Representatives of the Ministry of Agriculture of Mecklenburg-Vorpommern and the newly appointed peatland protection officers of the water and soil associations in Mecklenburg-Vorpommern also visited for this purpose.

In the summer of 2024, Grace Nono, a Philippine artist, came to the GMC for a two-month artist residency on climate protection funded by the German Federal Foreign Office. During her stay, she spoke with many people at the GMC, visited numerous peatlands in and around Greifswald, and performed artistic performances in peatlands.

Peatlands in the arts.

In 2024, the 250th birthday of one of the most important painters of Romanticism, Caspar David Friedrich, was celebrated. Friedrich was born in Greifswald, and therefore numerous events and special exhibitions were held throughout Germany, with a particular focus on Greifswald. The GMC contributed to the celebrations with several activities. In a public lecture, Hans Joosten explained paintings in which Caspar David Friedrich depicted peatlands. One of these paintings is “Meadows

near Greifswald", which actually portrays peatlands near Greifswald and is owned by the Kunsthalle Hamburg. The painting was loaned to the Pomeranian State Museum and presented there in a special exhibition accompanied by explanations about peatlands. For this purpose, the GMC extracted a peat core from the "Meadows near Greifswald" site and conducted pollen analysis to investigate the genesis of the peatland. Together with the MONAS Collective, the GMC also developed the exhibition EIN:FLUSS:RAUM:MOOR in Greifswald, which presented the peatland as a sound and light art installation inspired by Caspar David Friedrich and his fascination with landscapes (Fig. 3). As part of this exhibition, students of peatland ecology at the University of Greifswald presented the content of scientific publications in a variety of artistic formats. As another event series within the framework of the Caspar David Friedrich anniversary, the Succow Foundation organised several PEAToresk art workshops focusing on peatlands. Four artistic workshops invited participants to explore experimental and artistic perspectives in the drained peatland landscape of the Steinbeckervorstadt polder, the "Meadows near Greifswald" painted by Caspar David Friedrich (Fig. 3). In this way, connections to peatland ecology and invisible knowledge were made tangible, the present condition of peatlands was reflected upon, and embodied perspectives on dealing with transformed nature were developed. In addition, the project "Sensing Peat" at the Succow Foundation is developing an extensive global network of artists that gives concrete content and activities to the Venice Agreement. On World Peatlands Day, June 2, 2024, supporters of the Venice Agreement met in Torre Vedras, Portugal. The meeting included extensive exchange on the further development of the Venice Agreement, visits to Portuguese peatlands, and artistic activities.

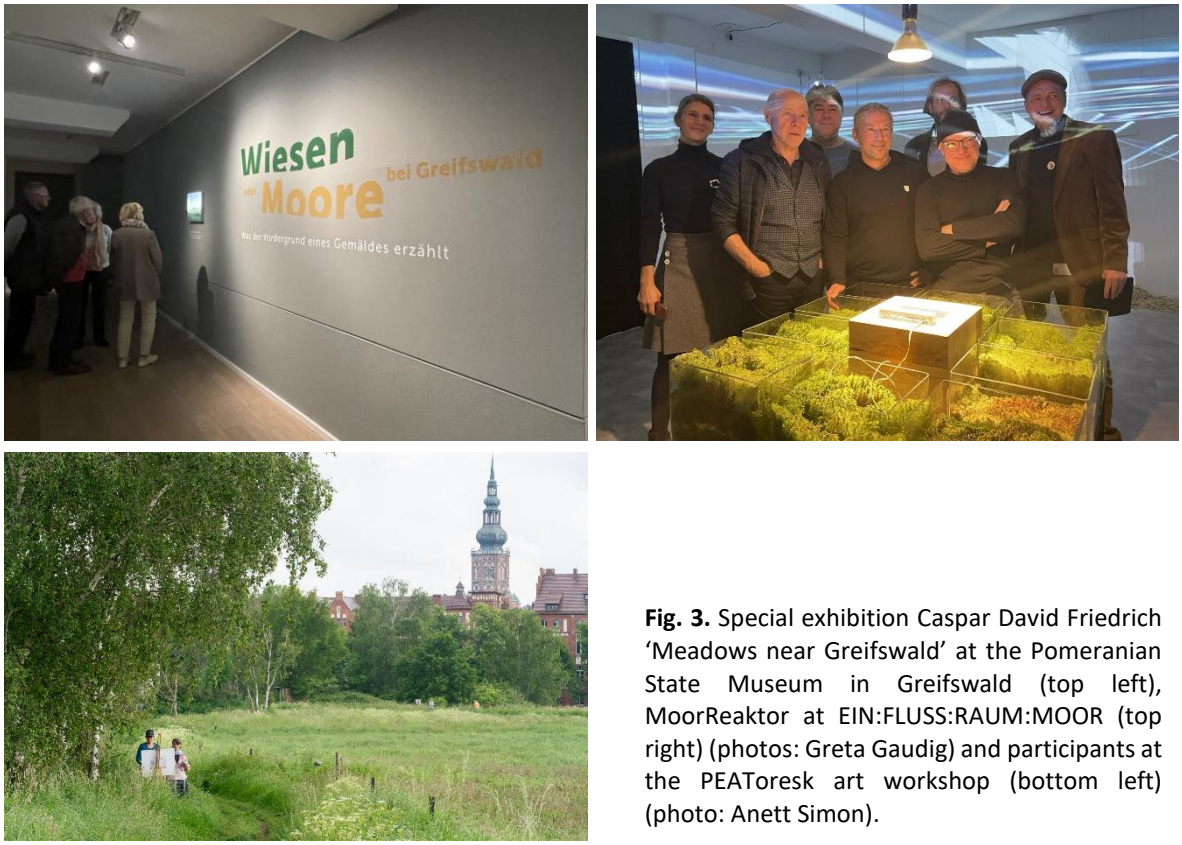


Fig. 3. Special exhibition Caspar David Friedrich 'Meadows near Greifswald' at the Pomeranian State Museum in Greifswald (top left), MoorReaktor at EIN:FLUSS:RAUM:MOOR (top right) (photos: Greta Gaudig) and participants at the PEAToresk art workshop (bottom left) (photo: Anett Simon).

2. Consultation & Participation

Peatland protection on our doorstep.

In Mecklenburg-Western Pomerania, the Peatland Agency MV (MoorAgentur MV) began its work at the start of 2024. It was established, on the recommendation of the GMC, as a central point of contact for advice, networking, and the conversion of land use on peatlands, and the Agency remains in regular exchange with the GMC. The new institution, based at the Landgesellschaft Mecklenburg-Vorpommern in Greifswald, is the first of its kind in Germany and is also funded by the Federal Ministry for the Environment. In 2024, most of the water and soil associations in Mecklenburg-Western Pomerania created new positions for a total of six peatland protection officers.

Within the MoKKa project, rewetted peatlands in Mecklenburg-Western Pomerania were a particular focus in 2024. During six peatland field days, completed and planned peatland protection projects were visited in order to learn directly from the experiences of those implementing them. These events aimed to share practical expertise and experience and to connect stakeholders. The content focused on successes and challenges in the practical implementation of rewetting and wet peatland management. The peatland field days were primarily aimed at regional stakeholders from agriculture, forestry, administration, water and soil associations, municipalities, as well as instructors in vocational and university education and training in Mecklenburg-Western Pomerania, but were open to all interested participants.

Peatland protection in Germany.

In 2024, the MoKKa project was also present at several nationwide events. Three workshops were held on the planning and approval of peatland conservation projects in peat-rich federal states (Lower Saxony, Baden-Württemberg, Schleswig-Holstein). These workshops will result in state-specific guidance documents for project developers and authorities. Two of them were organised jointly with the MoorNet project, in which DUENE participates as a partner in the GMC. At a technical forum in Berlin in June 2024, held in cooperation with the DBU, the legal report by S. Schlacke and M. Sauthoff (GMC publication series, Volume 02/2024) was presented and discussed with political decision-makers.

In November 2024, the MoKKa project's final conference took place under the motto "People.Make.Peatlands" ("Menschen.Machen.Moore"), focusing on strengthening climate protection in peatlands through capacity building. Around 135 participants attended in person in Schwerin, with a similar number joining online. In a keynote presentation, the GMC highlighted which stakeholder groups are particularly important for peatland climate protection, what they need to achieve greater implementation, and how they can be supported. Further presentations addressed how planning and approval processes can be accelerated and how land availability can be improved. Another important aspect was peatland education, particularly the inclusion of peatland climate protection in schools. A game from the "peatland toolkit" ("Moorkoffer") was perceived as both refreshingly different and motivating, in which participants, acting as different elements of a peatland, danced the effects of drainage and rewetting (Fig. 4).

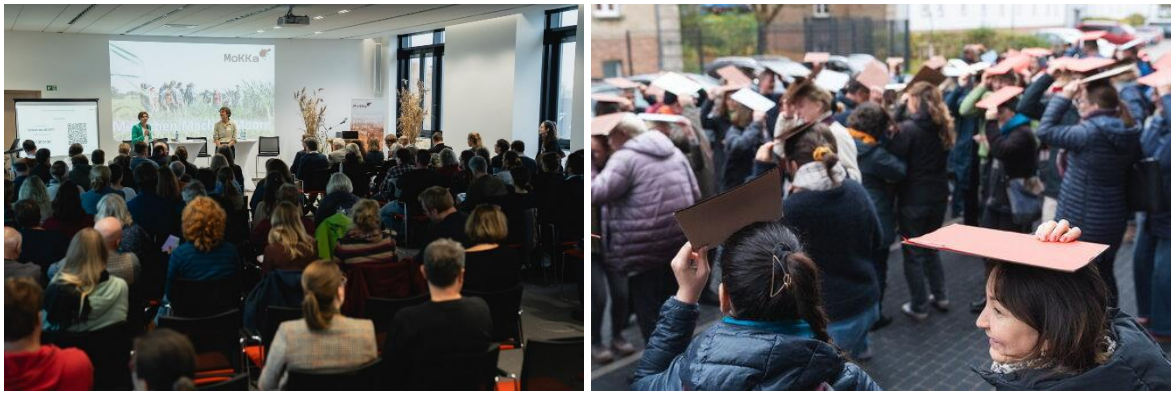


Fig. 4. Participants of the MoKKa final conference “PEOPLE.MAKE.PEATLANDS.” in November 2024 in Schwerin and the “dance of the elements” in a peatland as a game from the peatland toolkit (photos: Stephan Busse, Succow Foundation).

At the German Nature Conservation Day in September 2024 in Saarbrücken, the largest conference of nature conservation stakeholders in Germany, the GMC, together with the BfN, organised its own module on peatland climate protection (“Wet peatlands as climate protectors – combining conservation and use”), placing a particular focus on paludiculture and its potential uses.

As part of the Federal Ministry for the Environment’s (BMUV) Action Programme for Natural Climate Protection, three funding guidelines related to peatlands were published in 2024: 1) Rewetting and restoration of ecologically significant peatlands (“1,000 peatlands”), 2) Information, activation, coordination, and support of measures for the rewetting of peat soils (InAWi), and 3) Investment support for machinery and equipment to strengthen natural soil functions in agricultural landscapes and promote peatland-friendly management. A further funding guideline is currently in preparation. Results from the work of the GMC were used by the BMUV in shaping these funding guidelines. In 2024, Franziska Tanneberger (GMC) was appointed by Federal Environment Minister Steffi Lemke to the Scientific Advisory Board for Natural Climate Protection.

Peatland protection in Europe.

On 10 November 2023, the European Parliament, the European Commission, and the European Council reached an agreement on the EU Nature Restoration Law, which was adopted by the European Parliament on 27 February 2024. However, its final approval by the EU Environment Council remained uncertain for a long time and was only secured on 17 June 2024 by a narrow majority. In the end, the extensive efforts, including those of the GMC, to ensure the adoption of the EU Nature Restoration Law paid off. It is the most significant nature conservation legislation in 30 years and a historic gain for nature, including peatlands.

In May 2024, 31 government representatives and experts from 13 European countries met at the Federal Agency for Nature Conservation (BfN) in Bonn at the invitation of the Succow Foundation and EuroSite to exchange experiences on existing and planned national peatland protection strategies. The aim was to discuss the needs and opportunities for integrating strategic peatland protection and the sustainable use of organic soils at the European level, to gain an overview of current practices and existing regulations, and to explore possibilities for closer cooperation between countries.

Activities related to the EU Carbon Removal Certification Framework (CRCF) were closely supported, particularly with regard to peatlands, by Hans Joosten (GMC) in his role as a member of the European Commission's Expert Group on Carbon Removals.

In November 2024, a delegation from the Ministries of Agriculture of Norway and Germany visited the GMC to learn about the current state of peatland rewetting.

Northern Ukraine is at the center of an ambitious project dedicated to peatland rewetting and climate protection. The Succow Foundation is working together with the United Nations Environment Programme (UNEP) on the project "Promoting Sustainable Pasture Management and Ecosystem Conservation in Northern Ukraine," funded by the Global Environment Facility. The aim of this pilot initiative is to convert the management of three million hectares to ecological agriculture in order to reduce greenhouse gas emissions, improve soil fertility, and protect endangered species. To support this, a science-based feasibility study on paludiculture in Ukraine was developed, which is available in Ukrainian (link), and was presented at a side event in the Ukrainian Pavilion at the 2024 UN Climate Change Conference (COP29) in Baku, Azerbaijan.

Peatland protection worldwide.

The 2024 UN Climate Change Conference (COP29) took place in Baku, Azerbaijan, once again in a country with relatively few peatlands. Nevertheless, the GMC was present. Jan Peters, Managing Director of the Succow Foundation, attended in person and presented the new Global Peatland Atlas at a peatland-focused side event. The atlas was published by the United Nations Environment Programme (UNEP) as a product of the Global Peatlands Initiative and includes maps developed by the GMC. The atlas presents the most up-to-date data on the world's peatlands in the Global Peatland Map 2.0 and visualises their global threats as well as opportunities. The informative and visually engaging Global Peatland Hotspot Atlas serves as a call to action to place peatlands at the center of the global environmental agenda. It enables decision-makers to identify potential regions for conservation, restoration, and sustainable management and to take appropriate action. In preparation for the next climate conference, COP30, which will take place in peatland-rich Brazil, the GMC published an information paper on peatlands in Brazil (pdf).

The policy dialogue on low-emission strategies and resilient economic development with a focus on peatlands continued in 2024 for the countries of the Nile Basin in East Africa. In addition, similar activities were carried out in Belize on the eastern coast of Central America. As part of this effort, an employee of the Succow Foundation spent several weeks on site exploring peatland areas.

3. Implementation

Rewetting of our own areas.

Planning and work on the rewetting of areas owned by the Succow Foundation continued in 2024. In the early 1990s, a coastal protection dike was removed on the Karrendorfer Wiesen near Greifswald, restoring natural coastal and flooding dynamics. Across much of the 360 hectare area, valuable salt grassland communities have reestablished on a large scale. In some areas, however, where severe peat degradation has led to extensive subsidence, water currently remains for longer than in a natural coastal floodplain mire. As a result, salt grassland species have not yet been able to establish there. Additionally, a causeway further disrupts the natural dynamics. Since 2019, the Succow Foundation has been planning and implementing measures to revitalise natural processes, which were continued in the northern Karrendorfer Wiesen in 2024 (Fig. 5).

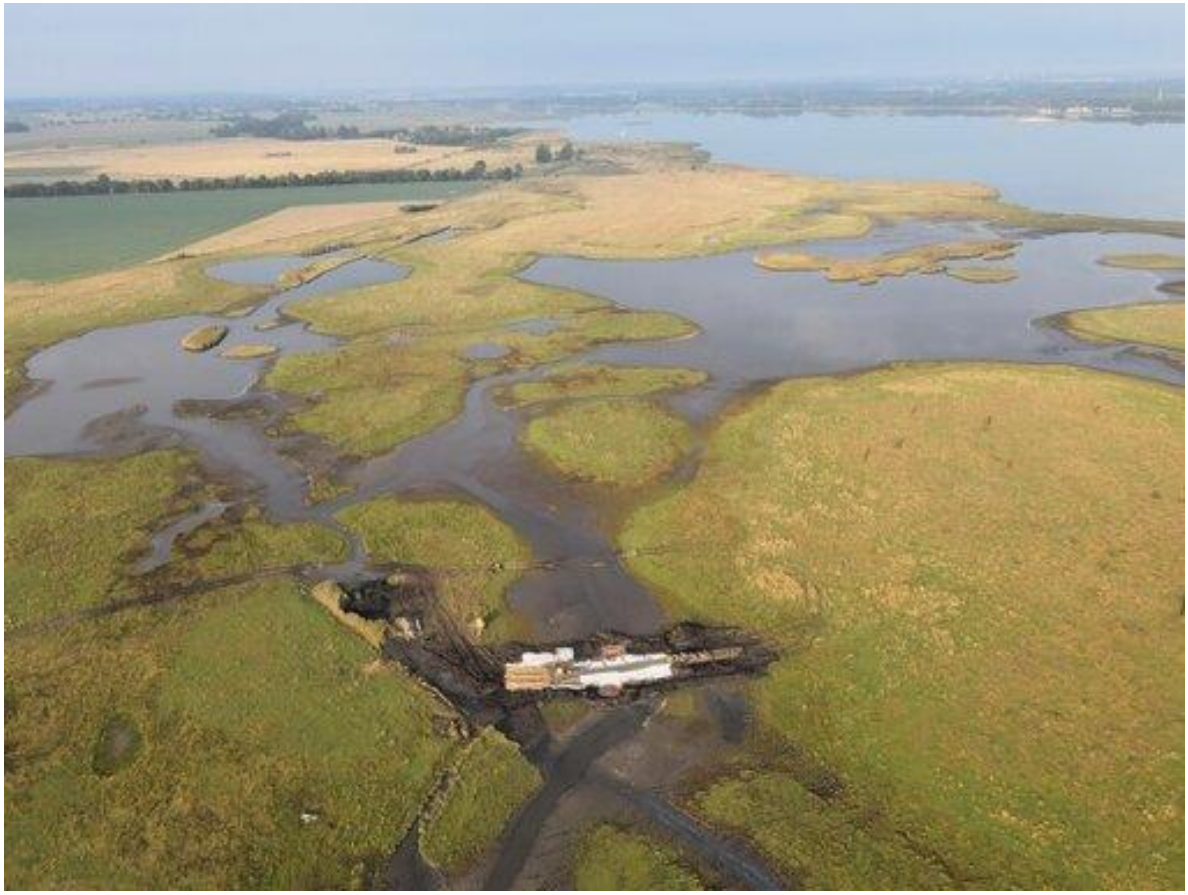


Fig. 5. Construction measures to revitalise natural processes in the Karrendorfer Wiesen near Greifswald, seen from a crane's perspective (Photo: N. Seifert / Michael Succow Foundation).

For years, the Succow Foundation has been working toward the revitalisation of the approximately 57 hectare Mannhagener Moor, located between Greifswald and Stralsund. Following a reorganisation of property ownership, the path was finally cleared to restore near natural water levels, and thus a healthy peatland, together with the nature conservation authorities, the state

forestry service, and with support from the PlanBe Foundation, after around 40 years of drainage. In 2024, drainage ditches in the Mannhagener Moor were extensively closed. In a buffer zone surrounding the peatland, the Succow Foundation promotes nature compatible management to reduce harmful inputs into the protected area.

Highlighting the potential of rewetted peatlands.

The joint initiative "**toMOORow** – Wet Peatlands for a Sustainable Future," led by the Succow Foundation and the Michael Otto Environmental Foundation, has launched the "Alliance of Pioneers." Within this alliance, 14 major companies commit to testing and, wherever possible, integrating renewable, regionally sourced raw materials from wet peatlands into their production processes. In the construction sector, interest in future paludiculture products has been expressed by the prefabricated housing manufacturer Bau-Fritz GmbH & Co. KG, the construction group STRABAG SE, OTTO WULFF Bauunternehmung GmbH, and Sto SE & Co. KGaA. The companies toom Baumarkt and OBI Group Holding SE & Co. KGaA are also considering biomass from rewetted areas in the horticulture segment as suppliers of substrates. Efforts to make paper and packaging more sustainable by incorporating paludiculture biomass are being undertaken by the trading and service company OTTO (GmbH & Co. KG), LEIPA Group GmbH, the WEPA Foundation, and, within the field of resource management, PreZero Stiftung & Co. KG together with OutNature GmbH. In the consumer goods sector for household and cosmetics, Procter & Gamble Service GmbH is participating, while in retail, Tengelmann Twenty-One KG is involved through KiK Textilien and Non-Food. The goal is to create rapidly growing demand for paludiculture biomass across various economic sectors. The official launch event took place on April 30, 2024, in Berlin, attended by Federal Environment Minister Steffi Lemke and Federal Agriculture Minister Cem Özdemir (Fig. 6). In autumn 2024, the alliance presented and already shipped its first pilot product: a shipping box from OTTO made with 10% paludiculture biomass.

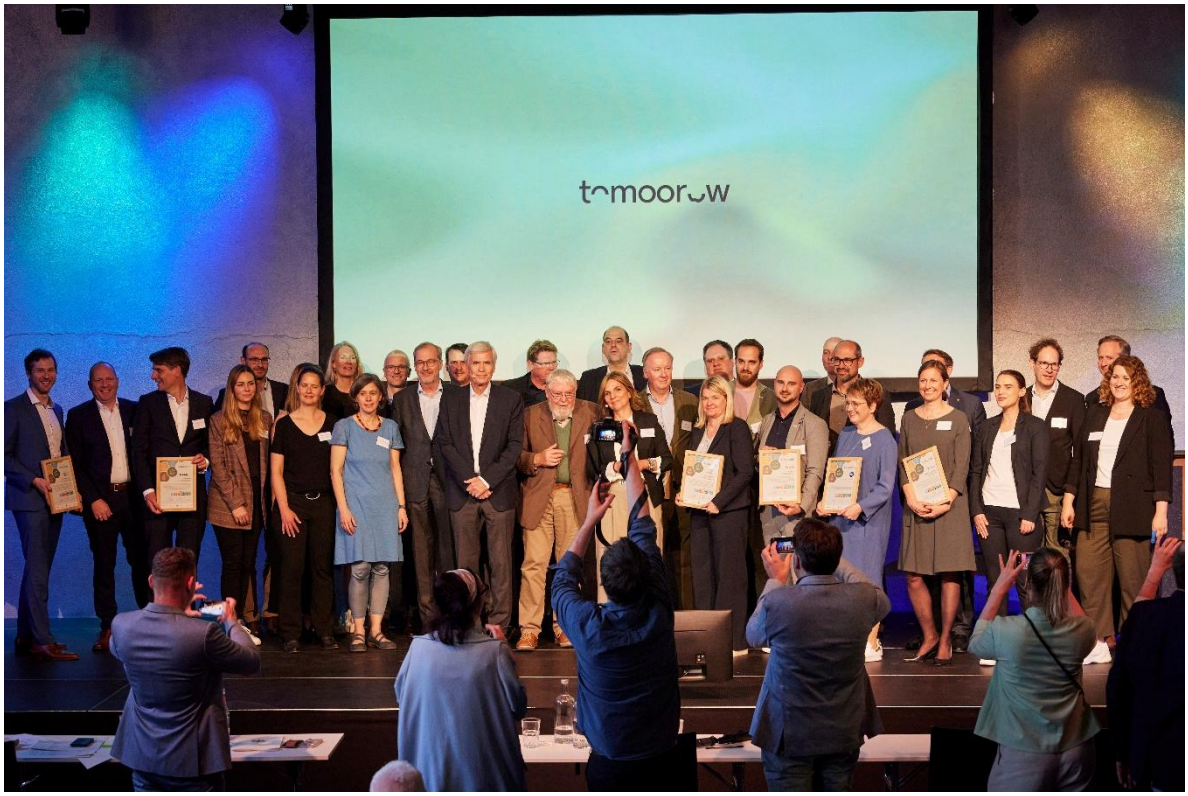


Fig. 6. Launch of the Alliance of Pioneers in April 2024 in Berlin (Photo: toMOORow).

Table 2. Projects launched at the GMC in 2024

Acronym	Titel	Partner	Funding	Duration
Living Lab Teufelsmoor	Manage fens in a wet, conservation-oriented way and use the resulting biomass in innovative ways.	GMC: Succow Stiftung + LWK Niedersachsen, TI, LK Osterholz, TU Dresden	BMEL/ FNR	01/2024-12/2032
PaludiAllianz	Development of scalable value chains using paludiculture biomass from rewetted peatlands in Germany, in practical collaboration with industry stakeholders.	GMC: University Greifswald, Succow Stiftung + Umweltstiftung Michael Otto	BMEL/ FNR	03/2024-12/2026
MoorPV	Climate and peatland soil protection through photovoltaics.	GMC:University Greifswald	Joachim Herz stiftung	01/2024-12/2026
Moorklimaschutz Ostseeküste	ANK pilot project on peatland climate protection on the Baltic Sea coast.	GMC:University Greifswald + Ostseestiftung, IOW	BMUV/ BfN	03/2024-03/2034
MoorSpezialist*innen	Programme “Training of peatland specialists.”	GMC: University Greifswald + Ostseestiftung, LUNG MV	BMUV/ ZUG, Land MV	11/2024-10/2032
GreenMoor	Optimisation of permanent grassland on raised bog sites for climate-oriented, future-proof management of grazing and mowing use in dairy farming.	GMC: University Greifswald + Grünlandzentrum Lower Saxony	ML Niedersachsen + Ammerländer Molkerei	04/2024-03/2028
WieMoDämm	Production of insulation materials from dominant vegetation stands in rewetted peatlands.	GMC: University Greifswald + Hanffaser Uckermark eG, Hochschule Wismar, GEKO Maschinenbau GmbH	BMBF	04/2024-12/2025

Acronym	Titel	Partner	Funding	Duration
MoorOS	The operating system for scaling peatland restoration.	GMC: DUENE + aeco GmbH	BMWK	10/2024-08/2025
Global Hotspot Atlas	Completion of the Global Hotspot Atlas for peatlands.	GMC: Succow Stiftung	UNEP	04/2024-11/2024
Zielkonflikte Moor	Guidelines for reducing conflicts of interest between nature conservation and climate protection in peatland conservation.	GMC: Succow Stiftung + Ecologic Institut, Institut biota	BMUV/ BfN	11/2024-12/2027
Hotspot 30	Daring more nature in Western Pomerania, together – Hotspot 30	GMC: Succow Stiftung + Rewilding Oder Delta e.V., Tourismusverband Vorpommern e.V., Ostseestiftung	BMUV/ BfN	03/2024-03/2030
Belize	Capacity building and streamlining peatlands in Belize's Nature based solutions	GMC: Succow Stiftung	Pew Trust	03/2024-12/2025
MoorPower	Sustainable and innovative solutions for photovoltaic systems on rewetted peatlands.	GMC: University Greifswald + Fraunhofer ISE, Thünen-Institut, Universität Hohenheim	BMBF	12/2024-12/2027

4. Research

Creating and consolidating knowledge.

Numerous new research projects were launched at the GMC in 2024 (Table 2). In addition to the ongoing projects MOOSland and PaludiVentral with the Living Lab Teufelsmoor, another 10-year model and demonstration (MuD) project funded by the Federal Ministry of Food and Agriculture has begun, focusing on peat soil conservation, including the use of renewable raw materials from paludiculture. In addition, a 10-year peatland climate protection project funded by the Federal Ministry for the Environment has been initiated, targeting peatlands along the Baltic Sea coast that are to be rewetted and studied without further use. The PaludiAllianz project focuses on building scalable value chains for paludiculture biomass in practical cooperation with industry stakeholders from the Alliance of Pioneers and beyond. This includes testing biomass quality, evaluating it for various applications, preparing and providing information, and planning the development of a digital "paludiculture biomass exchange." The expansion of renewable energy is being strongly promoted and is also of interest on peatland sites in the form of agri-photovoltaics (AgriPV). Since the ecological and economic impacts of photovoltaic systems on rewetted peat soils are still unclear, the MoorPV research project, funded by the Joachim Herz Foundation, was launched. For the large-scale implementation of peatland protection and rewetting, well-trained professionals are needed at many levels. To build capacity and train multipliers, the Federal Ministry for the Environment is funding a qualification programme developed with the support of the University of Greifswald. This 2 × 4-year programme will train a total of 40 peatland specialists. The GreenMoor project focuses on optimising permanent grassland on raised bog sites for climate-oriented, future proof management of grazing and mowing in dairy farming. The University of Greifswald is responsible for analysing greenhouse gas measurements and ensuring their quality management.

With WETSCAPES 2.0, a Collaborative Research Centre (CRC) funded by the German Research Foundation (DFG) on the topic of peatlands was successfully established for the first time at the end of the year. The research consortium, comprising the University of Greifswald and the University of Rostock, together with the Leibniz Institute of Freshwater Ecology and Inland Fisheries (IGB Berlin), the Helmholtz Centre Potsdam German Research Centre for Geosciences (GFZ), Ludwig Maximilian University of Munich (LMU), the Max Planck Institute for Biogeochemistry in Jena (MPI-BGC), and Humboldt University of Berlin, aims to better understand the functioning and the complex ecological, biogeochemical, and hydrological processes in rewetted fens. The project will investigate the impacts of rewetting fen peatlands across space and time at the landscape scale and beyond. In the long term, it seeks to develop concrete contributions to the management of these areas as well as to their sustainable use through paludiculture. WETSCAPES 2.0 strengthens cutting edge research in Mecklenburg-Western Pomerania and makes a significant contribution to addressing global challenges such as climate change and biodiversity loss, while advancing nature-based solutions at the regional level. Knowledge transfer and communication of the research topics to increase societal acceptance will take place in close cooperation with the GMC. The project is scheduled to start on April 1, 2025.

Knowledge transfer.

With Jürgen Kreyling and Franziska Tanneberger, two of the eleven authors of the 2024 statement by the German National Academy of Sciences Leopoldina titled "Climate – Water Balance – Biodiversity: Towards an Integrated Use of Peatlands and Floodplains" are researchers from the GMC. The statement, together with an accompanying digital dossier, emphasises the necessity of rewetting peatlands and restoring floodplains. It outlines actionable options to meet national and international commitments in climate protection, water management, and biodiversity conservation, while still enabling the use of these areas. These include protecting intact peatlands, transitioning to paludiculture, rewarding ecosystem services, and integrating peatland protection and management into CO_2 emissions trading schemes.

In 2024, a total of 44 publications were produced under the leadership or with the participation of individuals from the GMC, including 31 **scientific articles** (see list below). These cover, for example, research on peatlands in Brazil's Cerrado region, the Amazon, and the Iberian Peninsula, as well as historical perspectives on peatlands in painting and proverbs. Several methodological papers were also published, addressing topics such as the use of remote sensing techniques to assess peatland degradation and to predict yields of cattail-based paludiculture, the automated identification of the type and size of individual pollen grains, and the methodologies underlying MoorFutures. Other publications focus on nutrient and carbon dynamics and peat formation in coastal floodplain peatlands, in long-term Sphagnum paludiculture systems, and in temperate fens. A large, Europe-wide group of authors, including contributors from the GMC, demonstrated in Jurasinski et al. (2024) that active afforestation of drained peatlands is not a suitable measure within the framework of the EU Nature Restoration Regulation. In addition, several articles address questions such as how transformation processes for restoration or paludiculture can succeed, how topsoil removal affects the growth of cattails, and how peat mosses can be established as quickly as possible.

Researchers at the GMC place great importance on presenting their findings and making them available for discussion. Numerous contributions from the GMC were presented at many national and international conferences. In March 2024, the German Agricultural Research Alliance organised a conference on agricultural research in the context of climate change, where peatlands were a major focus. At the annual conference of the Society for Economic and Social Sciences of Agriculture, innovative concepts for a sustainable agricultural and food system were presented, also addressing peatlands and paludiculture. For the first time, the Peatland Science Centre in Freising hosted an international peatland conference, where GMC researchers delivered eleven presentations and presented four posters.

The 2024 book "Peatlands are like humans, just wetter" by Swantje Furtak and Hans Joosten (GMC) explains ecological, historical, social, and political aspects of the relationship between peatlands and humans in an accessible way across 176 pages, using numerous maps, graphics, and short anecdotes. The book, published by Katapult Verlag, is aimed at a broad audience with a taste for dry humour.

The GMC continued to grow in 2024. It currently comprises around 120 people working in an interdisciplinary and transdisciplinary manner on peatland-related topics. For internal training and capacity building, specialist courses were offered, including peat terminology and peatland classification, training in the Greenhouse Gas Emission Site Type (GEST) approach for estimating greenhouse gas emissions from organic soils, as well as courses to develop soft skills.

5. Networking

Strengthening cooperations, expanding networks, and empowering stakeholders.

The GMC collaborates with numerous partners across a wide range of projects and sees itself as part of a global network of scientists, NGOs, and practitioners working on and in peatlands. Existing partnerships have been continued and further strengthened.

The pilot projects funded by the Federal Ministry for the Environment and the Federal Ministry of Food and Agriculture, each designed to run for ten years, as well as model and demonstration projects and the coordinating project PaludiCentral, are working together within the newly established PaludiNet. Their shared goal is to establish and implement paludiculture on a practically relevant scale and to develop utilisation and value chains for the resulting biomass. The kick-off event took place in June 2024 in Braunschweig (Fig. 7).

Fig. 7. Participants in the PaludiNet at the kick-off event in June 2024 in Braunschweig. (Photo: Thünen Institute).

The Field Symposium of the International Mire Conservation Group (IMCG), the global network of peatland conservationists, took place in Germany this year and was co-organised and shaped by the GMC. A total of 35 participants from five continents and 17 countries, including six EU member states, visited 14 peatlands in Bavaria, Lower Saxony, Schleswig-Holstein, Brandenburg, and Mecklenburg-Western Pomerania from July 26 to August 4, 2024. The symposium concluded in Greifswald with a tour of the GMC and the general assembly. During this meeting, Hans Joosten (GMC) stepped down as long-standing Secretary General of the IMCG. Franziska Tanneberger (GMC) has been a member of the IMCG Main Board since 2018.

With the acquisition of the Collaborative Research Centre WETSCAPES2.0, cooperation with the University of Rostock will be expanded and intensified from 2025 onwards. In 2024, collaboration with the think tank “Agora Agrar,” founded in 2022 and focused on science-based policy advice for agriculture, forestry, and food, was also further developed. Together, an event titled “Climate-neutral building materials – an opportunity for wet peatland use” was held in Berlin in November 2024. The GMC has maintained close exchange with the Peatland Science Centre in Freising (PSC) from the outset and has contributed to the success of the international peatland conference through its participation in the Scientific Committee, numerous contributions, and advisory support for the organisation. In addition, an information paper on “Paludiculture and Biodiversity” was produced in cooperation with the PSC and the Eberswalde University for Sustainable Development. The GMC initiated a regular exchange on peatland issues within the German League for Nature, Animal and

Environment Protection (DNR), which has been taking place since 2023 with GMC participation. Jan Peters, Managing Director of the Succow Foundation, has been a member of the DNR's executive board since October 2024. At the international level, Jan Peters has served as Chair of Wetlands International Europe since 2023.

The GMC also provides advisory support to start-up companies committed to rewetting and paludiculture. ZukunftMoor GmbH aims to establish sphagnum moss paludiculture as a viable business model and set up its first sites in 2024. As a key developer of this form of paludiculture, the GMC contributes its many years of experience to ensure the success of the project. The GMC also supports aeco GmbH, which focuses on developing rewetting projects and financing them through CO_2 certificates across Europe. In 2024, the joint project MoorOS was launched to standardise and digitise the complex processes involved, thereby simplifying and accelerating scaling.

We would like to thank the following foundations for their financial support of cross-partner activities at the Greifswald Mire Centre: Bristol Foundation, North German Foundation for the Environment and Development, Otto Ritter Foundation, and the Right to Survival Foundation.

December 2024

Impressum:

Herausgeber | publisher:
Greifswald Moor Centrum | Greifswald Mire Centre
c/o Universität Greifswald,
Institut für Botanik und Landschaftsökologie
Soldmannstraße 15, 17489 Greifswald
Germany
Tel: +49(0)3834 420 4101
Mail: info@greifswaldmoor.de
Internet: www.greifswaldmoor.de

Das Greifswald Moor Centrum ist eine Kooperation von Universität Greifswald, Michael Succow Stiftung und DUENE e.V. | The Greifswald Mire Centre is a cooperation between University of Greifswald, Michael Succow Foundation and DUENE e.V.

Publications of the GMC in 2024

GMC-Publication series

Nordt, A., Abel, S., Hirschelmann, S., Lechtape, C. & Neubert, J. (2024) Guidelines for implementation of paludiculture. Greifswald Moor Centrum-Schriftenreihe 06/2024 (Selbstverlag, ISSN 2627–910X), 144 S.

Feldmann, T. & Kötting-Gerkens, J. (2024) Moor-Klimabildung ist Zukunftsbildung – Tagungsband Fachtagung Moorpädagogik. Greifswald Moor Centrum-Schriftenreihe 05/2024 (Selbstverlag, ISSN 2627-910X), 44 S.

Uhl, T., Koppensteiner, W., Krabbe, K., Schäffer, S., Lemke, N. & Hirschelmann, S. (2024) Moore in der Raumordnung - Bedeutung des Instruments Raumordnung für den Moorbodenschutz am Beispiel Mecklenburg-Vorpommern. Greifswald Moor Centrum-Schriftenreihe 04/2024 (Selbstverlag, ISSN 2627-910X), 50 S.

De Klerk, P. (2024) Vegetation history and landscape development in and around the Friedländer Große Wiese peatland (Mecklenburg-Vorpommern, NE Germany): an integration of palaeoecological and geomorphological data - mit ausführlicher Zusammenfassung auf Deutsch. Greifs¬wald Moor Centrum-Schriftenreihe 03/2024 (Selbstverlag, ISSN 2627-910X), 53 S. (auf Englisch mit Zusammenfassung auf Deutsch)

Schlacke, S. & Sauthoff, M. (2024) Rechtsfragen im Zusammenhang mit der Wiedervernässung von Mooren – unter besonderer Berücksichtigung des Rechts des Landes Mecklenburg-Vorpommern. Greifswald Moor Centrum-Schriftenreihe 02/2024 (Selbstverlag, ISSN 2627-910X), 209 S.

Lemke, N. & Hirschelmann, S. (2024) Rechtliche Rahmenbedingungen für die Wiedervernässung und Nutzung von Mooren - Ein Mapping von Handlungsfeldern und Hebeln. Greifswald Moor Centrum-Schriftenreihe 01/2024 (Selbstverlag, ISSN 2627-910X), 10 S. + Übersicht Hebel Nutzung und Wiedervernässung (jpg Dateien in hoher Auflösung) + Download der Daten für Lemke & Hirschelmann 2024 (xls Datei)

Fact papers and statements

- 2024 Policy briefs und Ländersteckbriefe: Neuer politischer Auftrag für die Wiederherstellung von Feuchtgebieten in Europa (auch in Englisch, Französisch, Niederländisch) und Karten zu den Wiederherstellungszielen in Belgien, Deutschland und Österreich
- 2024 Peatlands in Brazil – the most carbon dense ecosystem under threat jointly produced by the Greifswald Mire Centre, Germany, the Federal University of the Jequitinhonha and Mucuri valleys, Brazil, and the Instituto National de Pesquisa do Pantanal, Brazil
- 2024 Paludikultur und Biodiversität

Publications with participation of the GMC 2024

Barthelmes, A., Tegetmeyer; C., Joosten, H. & Scheel, P. (2024) Global Peatland Hotspot Atlas: The State of the World's Peatlands in Maps. Visualizing global threats and opportunities for peatland conservation, restoration, and sustainable management. United Nations Environment Programme, Nairobi.

Beer, F., Rodrigues Munhoz, C.B., Couwenberg, J., Horák-Terra, I., Fonseca, L.M.G., Rodrigues Bijos, N., Nunes da Cunha, C. & Wantzen, K.M. (2024) Peatlands in the Brazilian Cerrado: insights into knowledge, status and research needs. Perspectives in Ecology and Conservation, DOI: 10.1016/j.pecon.2024.07.003

Breznikar, A., Pönisch, D. L., Lorenz, M., Jurasinski, G., Rehder, G. & Voss, M. (2024) Rewetting effects on nitrogen cycling and nutrient export from coastal peatlands to the Baltic Sea. Biogeochemistry. DOI: 10.1007/s10533-024-01149-9

De Klerk, P. (2024) Peatland paintings from the past: A picture of a wetland described by Philostratus the Elder (ca. 190–230 CE). Mires and Peat, Vol. 31, Art. 11, 6 pp. DOI: 10.19189/MaP.2024.OMB.Sc.2417895

De Klerk, P. (2024) Peatland proverbs from the past: buying the marsh with the salt (Aristotle, 384–322 BCE). Mires and Peat, Vol. 31, Art. 20, 1 – 4, DOI: 10.19189/MaP.2024.OMB.Sc.247337

De Waard, F., Connolly, J., Barthelmes, A., Joosten, H. & van der Linden, S. (2024) Remote sensing of peatland degradation in temperate and boreal climate zones – A review of the potentials, gaps, and challenges. Ecological Indicators, 166, 112437. DOI: 10.1016/j.ecolind.2024.112437

Fernandes, R., Geraldes, M., Marchante, E., Durán, J., Capinha, C. (2024) Recent land use and land cover pressures on Iberian peatlands. Ecological Indicators, 158, 111412. DOI: 10.1016/j.ecolind.2023.111412

Furtak, S. & Joosten, H. (2024) Moore sind wie Menschen, nur nasser. Katapult Verlag, 176 S.

Garcia, C., Brasseur, B., Bacon, J., Saulnier-Copard, S., Gauthier, C., Mathieu, L.-A., Gauthier, A., Michaelis, D., Mokadem, F. & Antoine, P. (2024) Lateglacial and Holocene palaeoenvironmental evolution of alkaline peatlands in the Somme valley (France): between climate and anthropogenic forcing. Boreas. DOI: 10.1111/bor.12676

Gaudig, G., Prager, A. & Krebs, M. (2024) How to promote Sphagnum lawn establishment in drained bogs: the role of water table and moss vitality. Mires and Peat, 31, Art. 06, 22 pp. DOI: 10.19189/MaP.2023.OMB.Sc.2305346

Gios, E., Verbruggen, E., Audet, J., Burns, R., Butterbach-Bahl, K., Espenberg, M., Fritz, C., Glatzel, S., Jurasinski, G., Larmola, T., Mander, Ü., Nielsen, C., Rodriguez, A.F., Scheer, C., Zak, D. & Silvennoinen, H.M. (2024) Unraveling microbial processes involved in carbon and nitrogen cycling and greenhouse gas emissions in rewetted peatlands by molecular biology. Biogeochemistry 167:609 – 629.

Hellmann, C., Bobertz, B., Hübner, F., Köhn, N., Kreyling, J. & van der Linden, S. (2024) Biomass prediction of Typha latifolia on a paludiculture site by combining structural and spectral features from UAS data. Mires and Peat, Volume 31, Article 18, 20 pp.

Hünnebeck-Wells, A., Loos, J., Abel, S. & Nordt, A. (2024) Transformation towards the sustainable management of peatlands: A characterisation of farmers in the Teufelsmoor, Germany. People and Nature, DOI: 10.1002/pan3.10701

Jaszczuk, I., Jablonska, E., Kozub, L., Tanneberger, F., Aggenbach, C., Seeber, E., van Diggelen, R., Kreyling, J., Silvennoinen, H.M. & Kotowski, W. (2024) Peat formation potential of temperate fens increases with hydrological stability. Science of The Total Environment 947: 174617.

Joosten, H. (2024) Blue carbon and the concept of "coastal wetlands" in the IPCC 2013 Wetlands Supplement. In: Clüsener-Godt, M., Matsuda, H., Böer, B. & Loughland, R. A. (eds.): Blue carbon mangrove ecosystems - A concept-based approach. Springer, Cham, pp. 187 – 193. (link)

Joosten, H. (2024) Landwirtschaftliche Nutzung von Mooren. In: Bayer. Akademie der Wissenschaften (Hrsg.): Moore: Ökosystemfunktionen, Biodiversität und Renaturierung. Pfeil, Günding: 65 – 76. (link)

Joosten, H. (2024) Peatland must be wet. Advance rewetting, stop peat extraction. In: K. Wiegandt (ed.), 3 Degrees More. The impending hot season and how nature can help us prevent it. Springer, Cham, pp. 179-203. DOI: 10.1007/978-3-031-58144-1_9

Jurasinski, G., Barthelmes, A., Byrne, K.A., Chojnicki, B.H., Christiansen, J.R., Decleer, K., Fritz, C., Günther, A., Huth, V., Joosten, H., Juszczak, R., Juutinen, S., Kasimir, A., Klemedtsson, L., Koebsch, F., Kotowski, W., Kull, A., Lamentowicz, M., Lindgren, A., Lindsay, R., Linkevičienė, R., Lohila, A., Mander, Ü., Manton, M., Minkkinen, K., Peters, J., Renou-Wilson, F., Sendžikaitė, J., Šimanauskienė, R., Taminskas, J., Tanneberger, F., Tegetmeyer, C., van Diggelen, R., Vasander, H., Wilson, D., Zableckis, N., Zak, D.H. & Couwenberg, J. (2024) Active afforestation of drained peatlands is not a viable option under the EU Nature Restoration Law. Ambio. DOI: 10.1007/s13280-024-02016-5

Lechtape, C. & Hohlbein, M. (2024) Der „schlafende" Riese, Wiedervernässung von Moorböden. In Ökologisches Wirtschaften, Bd. 39 Nr. 3, Landwirtschaft und Energiewende

Malpica-Piñeros, C., Barthelmes, A. & Joosten, H. (2024) What, when, who and how? A review of peatland research in Amazonia. Mires and Peat, 31, 03, 26 pp. (link)

Mariani, M., Wills, A., Herbert, A., Matthew, A., Florin, S.A., Cadd, H., Connor, S., Kershaw, P., Theuerkauf, M., Stevenson, J., Fletcher, M.-S., Mooney, S., Bowman, D. & Haberle, S. (2024) Shrub cover declined as Indigenous populations expanded across southeast Australia. Science, 386, 567-573. DOI: 10.1126/science.adn8668

Nordt, A. & Wichtmann, W. (2024): Paludikultur: Faserverarbeitung für unterschiedliche Zielmärkte. In Flessa et al. (Hrsg.): Bioökonomie und regionaler Strukturwandel. Teil 5: Wertschöpfung, Innovation und Nachhaltigkeit planen und umsetzen. Anwendungsbeispiele aus dem nordöstlichen MV. Springer Nature. 24, S 381 -393, https://link.springer.com/book/9783658423575

Nationale Akademie der Wissenschaften Leopoldina (2024): Klima – Wasserhaushalt – Biodiversität: für eine integrierende Nutzung von Mooren und Auen. Halle (Saale). DOI: 10.26164/leopoldina_03_01185

Pham, VD., de Waard, F., Thiel, F., Bobertz, B., Hellmann, C., Nguyen, D.-V., Beer, F., Arasumani, M., Schwieder, M., Hartleib, J., Franzu, D. & van der Linden, S. (2024) An annual land cover dataset for the Baltic Sea Region with crop types and peat bogs at 30 m from 2000 to 2022. Sci Data 11, 1242. DOI: 10.1038/s41597-024-04062-w

Piecha, M., Kreyling, J., Couwenberg, J., Pester, M., Guenther, A., Henningsen, L., Weil, M., Jurasinski, G., Blume-Werry, G., Urich, T. & Wang, H. (2024) Plant roots but not hydrology control microbiome composition and methane flux in temperate fen mesocosms. Science of the Total Environment. DOI: 10.1016/j.scitotenv.2024.173480

Sanhueza, J.S., Gaudig, G., Krebs, M., Navarro, I.M. & Labbé, F.S. (2024) Turberas y cosecha de Sphagnum en la región de Aysén, Chile. Ciencia & Investigación Forestal. Vol. 30, 43-63. DOI: 10.52904/0718-4646.2024.606

Seidel, M., Wichmann, S., Pump, C. & Beckmann, V. (2024) Combining photovoltaics with the rewetting of peatlands - a SWOT analysis of an innovative land use for the case of North-East Germany. Land 2024, 13, 1548. DOI: 10.3390/land13101548

Sommer, P., Lakner, S., Nordt, A., Tanneberger, F. & Wegmann, J. (2024) Deriving a justified budget for peatland rewetting – Applying the German coal phase-out as a blueprint. Land Use Policy. Land Use Policy 147: 107363. DOI: 10.1016/j.landusepol.2024.10

Tanneberger, F. (2024) Verbreitung und Zustand der Moore weltweit, in Europa und in Deutschland. In: Bayer. Akademie der Wissenschaften (Hrsg.): Moore: Ökosystemfunktionen, Biodiversität und Renaturierung. Pfeil, Günding: 13 – 25. (link)

Tanneberger, F., Berghöfer, A., Brust, K., Hammerich, J., Holsten, B., Joosten, H., Michaelis, D., Moritz, F., Reichelt, F., Schäfer, A., Scheid, A., Trepel, M., Wahren, A. & Couwenberg, J. (2024) Quantifying ecosystem services of rewetted peatlands - the MoorFutures methodologies. Ecological Indicators. DOI: 10.1016/j.ecolind.2024.112048

Temmink, R., Fritz, C., Koks, A., Smolders, F., Vroom, R., Käärmelahti, S., Krebs, M., Gaudig, G., Joosten, H., Lamers, L. & van Dijk, G. (2024) Veenmosteelt. Een springplank naar een duurzaam veenweidegebied? Landschap 41: 183-191.

Temmink, R., Robroek, B., Koks, A., Smolders, F., Lamers, L., Fritz, C., Käärmelahti, S., Giesen, W., Wassen, M., Joosten, H. & van Dijk, G. (2024) Wetscapes als duurzaam toekomstperspectief voor veenlandschappen. Landschap 41: 173-182.

Temmink, R. J. M., Vroom, R. J. E., van Dijk, G., Käärmelahti, S. A., Koks, A. H. W., Joosten, H., Krebs, M., Gaudig, G., Brust, K., Lamers, L. P. M., Smolders, A.J. P. & Fritz, C. (2024) Restoring organic matter, carbon and nutrient accumulation in degraded peatlands: 10 years Sphagnum paludiculture. Biogeochemistry 167: 347 – 361.

Theuerkauf, M. & Couwenberg, J. (2024) "LOVE Is in the R—Two R Tools for Local Vegetation Reconstruction" Quaternary 7, no. 2: 18. DOI: 10.3390/quat7020018

Theuerkauf, M., Nehring, E., Gillert, A., Bodien, P.M., Hein, M. & Urban, B. (2024) First automatic size measurements for the separation of dwarf birch and tree birch pollen in MIS 6 to MIS 1 records from Northern Germany. Ecology and Evolution, 14:e11510. DOI: 10.1002/ece3.11510

Thonicke, K., Rahner, E., Arneth, A., Bonn, A., Borchard, N., Chaudhary, A., Darbi, M., Dutta, T., Eberle, U., Eisenhauer, N., Farwig, N., Flocco, C. G., Freitag, J., Grobe, P., Grosch, R., Grossart, H. P., Grosse, A., Grützmacher, K., Hagemann, N., Hansjürgens, B., Hartman Scholz, A., Hassenrück, C., Häuser, C., Hickler, T., Hölker, F., Jacob, U., Jähnig, S., Jürgens, K., Kramer-Schadt, S., Kretsch, C., Krug, C., Lindner, J. P., Loft, L., Mann, C., Matzdorf, B., Mehring, M., Meier, R., Meusemann, K., Müller, D., Nieberg, M., Overmann, J., Peters, R. S., Pörtner, L., Pradhan, P., Prochnow, A., Rduch, V., Reyer, C., Roos, C., Scherber, C., Scheunemann, N., Schroer, S., Schuck, A., Sioen, G. B., Sommer, S., Sommerwerk, N., Tanneberger, F., Tockner, K., van der Voort, H., Veenstra, T.,

Verburg, P., Voss, M., Warner, B., Wende, W. & Wesche, K. (2024) 10 Must-Knows aus der Biodiversitätsforschung. Leibniz-Forschungsnetzwerk Biodiversität, Potsdam, Deutschland, 72 Seiten. DOI: 10.5281/zenodo.10794362

van den Berg, M., Gremmen, T. M., Vroom, R. J. E., van Huissteden, J., Boonman, J., van Huissteden, C. J. A., van der Velde, Y., Smolders, A. J. P. & van de Riet, B. P. (2024) A case study on topsoil removal and rewetting for paludiculture: effect on biogeochemistry and greenhouse gas emissions from Typha latifolia, Typha angustifolia, and Azolla filiculoides. Biogeosciences 21, 2669–2690. DOI: 10.5194/bg-21-2669-2024

Vroom, R.J.E., Gremmen, T.M., van Huissteden, J., Smolders, A.J.P., Kosten, S., Fritz, C., van de Riet, B.P., van Huissteden, C. & van den Berg, M. (2024) Species-dependent methane emissions in a Dutch peatland during paludiculture establishment. Mires and Peat, 31, Art. 13, 19 pp

Wichmann, S. & Nordt, A. (2024) Unlocking the potential of peatlands and paludiculture to achieve Germany's climate targets: obstacles and major fields of action. Frontiers in Climate 6: 1380625, 1-20. DOI: 10.3389/fclim.2024.1380625

Wichtmann, W. & Beckmann, V. (2024) Zertifizierung von Paludikultur. Berichte über Landwirtschaft. 33 S. https://www.buel.bmel.de/index.php/buel/article/view/517/754

Wichtmann, W. & Denyshchyk, O. (2024): Paludikultur, EU-Erfahrungen und Perspektiven für die Umsetzung in der Ukraine, Kompendium erstellt für die Succow Stiftung, Greifswald im Auftrag von UNDP-Ukraine. 130 S., (auf Ukrainisch): (https://www.undp.org/uk/ukraine/publications/palyudykultura-dosvid-yes-ta-perspektyvy-vprovadzhennya-v-ukrayini)

Wichtmann, W., Foth, S. & Müller, J. (2024) Spezialist für nasse Böden. Bauernzeitung. 40. Woche 2024, S.44 – 45

Wolf, R., Huth, V. & Jansen, F. (2024) Managing wet fen meadows for nature conservation leads to a moderate warming effect. Mires and Peat, Vol. 31, Art. 23, 1-19, DOI: 10.19189/MaP.2024.OMB.Sc.2471578

Wollnik, R., Borchers, M., Seibert, R., Abel, S., Herrmann, P., Elsasser, P., Hildebrandt, J., Meisel, K., Hofmann, P., Radtke, K., Selig, M., Kazmin, S., Szarka, N. & Thrän, D. (2024) Dynamics of bio-based carbon dioxide removal in Germany. Scientific Reports 14, 20395 (link)