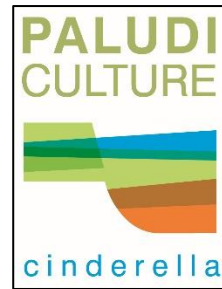


CINDERELLA - Update XV

November 2017, W. Wichtmann

“Comparative analysis, integration and exemplary implementation of climate smart land use practices on organic soils: progressing paludicultures after centuries of peatland destruction and neglect” (CINDERELLA)



By irregular updates the CINDERELLA community and colleagues are informed about dates, news and other interesting issues within the scope of the CINDERELLA project, ref. paludiculture. All partners are kindly asked to provide current information, which can be inserted here. The idea is to keep all project partners informed on the same level, to exchange information, to ask project related current questions, to arrange meetings and to make appointments as well as to prepare common activities (publications, new projects, etc.).

Cinderella activities:

Online survey on economic incentives for wet peatlands (Sabine Wichmann)

The development of incentives that account for social and environmental costs and benefits of peatland use have been identified as a major action for achieving large-scale paludiculture (FAO 2016). We compile information on existing examples that acknowledge peatland or wetland ecosystem services. Good practise examples can be an inspiration for incentives that may initiate and reward the shift to sustainable agriculture on peatlands and increase the economic viability and competitiveness of paludiculture. This survey is part of the project “CINDERELLA - Comparative analysis, integration and exemplary implementation of climate smart land use practices on organic soils: Progressing paludicultures after centuries of peatland destruction and neglect”.

Some existing examples are:

- Peatland rewetting for climate benefits (Credits for voluntary carbon market in Germany (MoorFutures) and UK (Peatland Code))
- (Re-)Establishment and maintenance of wetlands for nutrient retention (EU co-funded Agri-environmental measure in Denmark and Sweden, focus on action)
- Maintenance of peatland biodiversity (EU co-funded Agri-environmental measure in Poland, focus on results since payments for habitat management are only provided if certain plant or bird species are found on the site)

Thank you for sharing your experience: <http://survey.paludiculture.com> or contact Sabine Wichmann (wichmann@uni-greifswald.de) for further information.

2nd reed conference (rrr2017) in Greifswald

The last week of September 2017 Greifswald dedicated to paludiculture. Starting the 22nd of September, the art exhibition RUMOOREN! offered unusual perspectives on peatlands. Organised by the Greifswald Mire Centre in cooperation with the Caspar-David-Friedrich-Institute of Greifswald University, 19 artists presented their art objects, e.g. turf installations and typha cushions. The art pieces were intended to promote wider public perception of peatlands, climate protection and sustainable use. About one hundred art and peatland lovers attended the vernissage on 24th of September.



Fig.: The installation “Uneareded 1” won the first price of the art contest “RUMOOREN!”. Ingrid Ogenstedt builds archaic looking, site specific installations from peat and sods.

The rrr2017 conference week in Greifswald started with a one day event on the 25th of September 2017. This was held in German language, dealing with “Climate protection and peatland use: potential in Germany”. Recent information about can be found on the conference web page: <http://www.rrr2017.com/en/veranstaltungen/rrr2017/index.php>. More than 100 persons participated in this national conference, more than 120 persons joined one of the six excursions and ~200 persons participated in the following 2 days international conference . Both conferences have been a great success!



Fig.: Vegetation expert Wulf Hahne shows rare species (*Apium repens*) to participants of excursion 1 at some rewetted fen peatland sites near the lake Kummerow, 70 km southwest from Greifswald.

The international rrr2017 conference was **the** outstanding event on paludiculture in 2017. It showed that the concept of paludiculture is perceived worldwide, and that scientists and practitioners are already dealing with its implementation. On the conference, 13 oral presentations had the term paludiculture in their title, the abstracts from 35 oral presentations (total: 54) and 21

from 48 poster abstracts mentioned this term. Instead of using the term paludiculture, most of the further abstracts described this issue by other wording, like wet agriculture, use of peatlands under wet conditions, harvesting wetland plants, wetland management, use of wetland biomass, wet peatland utilisation, use of wet and rewetted peatlands.

As one outcome of this second international conference on the utilisation of wetland plants “Renewable resources from wet and rewetted peatlands” (RRR2017) a concluding statement has been elaborated together with more than 100 attendees. This statement can be downloaded from the webpage mentioned above. Several reports will be published in specialist journals and magazines (peatland international, Telma). And there will be a special volume of the online magazine mires and peat (m&p: <http://www.mires-and-peat.net/>). Further evaluation of the outcomes from the conference will be done within the final Cinderella project report.



Figures: Exhibition of big harvesting machines on Greifswalds market square (left). Clearance project meeting beside the conference

News from Nijmegen (Jeroen Geurts, Christian Fritz)

In the last week of August a new pilot site of 1.5 hectare in the buffer zone of nature area "De Peel" was planted with cattail (by hand). Unfortunately the site was quite dry due to water shortage in this area. Plants did survive however, so we expect a better development next year under wetter conditions. In the same week, a small pilot was opened in polder Krimpenerwaard with the following species: cattail, willow, reed and duck potato.

The cattail pilot site on the experimental farm in Zegveld has been harvested for the second time in this growing season on 19 September. A two wheeled reaper-binder was used to mow the cattails around 10 cm above water level. Biomass yield was 1.94 ton dry matter/ha, compared to 6.81 ton dry matter/ha at the first harvest in June. It was observed that regrowth was mainly from new shoots. The cattail biomass was then transported to the farm, chopped with a maize harvester, and ensiled with molasses for feed experiments next January.



Fig.: Harvesting Typha in Zegveld test field



Fig.: Chopping *Typha* with a maize chopping device for ensilaging

On the 12th of October, Leon and Hans were involved in the final symposium of the project "Omhoog met het veen", where it was shown that peat moss could be cultivated on former agricultural peat meadows. Later that month, we organized a paludiculture workshop and an excursion for the European Rural Parliament, with 200 representatives from rural municipalities all over Europe. In the last week of October we had a knowledge transfer meeting with Waternet (one of the Dutch water authorities) about CO₂ reduction in peatlands by different water management plans and about paludiculture pilots.

On the 9th of November, we organized a session on the national conference on soil subsidence, together with Aldert van Weeren, Waternet and B-Ware. Several mitigation measures to counteract peat soil subsidence were presented (including paludiculture) and evaluation methods of these measures were discussed.

News from other projects and peatland related activities

Mire dialogue Germany: Workshop on Water management and peatland conservation (Susanne Abel, Greifswald and Michael Trepel, Kiel)

During a workshop with about 30 experts in Ammersbek near Hamburg, Germany, in June 2017 experts from water boards, water authorities and science discussed on water management and peatland conservation issues (Fig. 1). Main questions were how water management can improve peat conservation and which reasons hinder water boards in playing a more active role in peatland conservation. The workshop was jointly organised by the project MoorDialog (German Mire Dialogue) run by Greifswald Mire Centre, and the German Peat Society. Most peatlands in Germany are drained and are in use for agricultural purposes or for forestry. In Germany, water boards are the organisations responsible for their exhaustive maintenance.

Peatlands used for agriculture are still responsible for about 4 % of the national greenhouse gas emissions, and significant nutrient leaching to surface waters. These drained peatlands show severe losses of endangered plant and animal species resulting in an overall loss of biodiversity. Farmers and water boards suffer from subsidence caused by peat oxidation, soil settlement and erosion which leads to increased costs for maintaining water management infrastructure and pumping.



Fig.: Participants from water boards, administration and science discuss during a workshop, how water managers can play a more active role in peatland rewetting (Photo: Trepel).

So both, from an environmental perspective as well as from an user perspective water management will be the key in solving these challenges. Interestingly, agriculture and water management have – at least in Germany – not addressed this issue proactively, although they have severe problems in using peatlands economically. Rewetting is until now more

or less carried out by nature conservation projects focusing either on the reestablishment of peat forming systems or maintaining a species rich flora and fauna through a specific management. In Germany, only a few rewetting projects were implemented with the aim to reduce greenhouse gas emissions.



Fig.: wet areas in the upper Eider valley grazed by Konik horses in Schleswig Holstein (M. Trepel)

During the workshop, the participants discussed why water managers do not pick up this issue actively by themselves. As one reason could be identified that knowledge about the background of the problem of the staff employed at water boards is missing. Subsidence itself is a slow process and its effects on yield and costs are not easily seen in short time periods. Furthermore, water managers are responsible for a large area with many different members like municipalities, land owners and farmers.

For rewetting measures everybody must be convinced to agree. This can be time consuming or even unpromising. Round tables or land transfer could be suitable methods. Secondly, alternative sustainable land use forms, which can be summarized under the term paludiculture, are presently not economically and legally competitive against an agriculture based on drainage and subsidies which does not take their long-term ecological and economical effects into account. Thirdly, simplifying solutions do not recognize the diverse conditions in peatlands water management and thus are not accepted. Peatlands in Germany differ in their size, their stratigraphy and are located under different climatic conditions, consequently they differ also in their water management. In the western part of Germany, the climate is oceanic and rainfall is abundant all year round. Large peatlands are often drained by pumping stations and a dense drainage network. These peatlands are surrounded by dikes preventing them from flooding. Many fen peatlands in river valleys in Germany are drained only by gravity; low water levels in the rivers lead to low water levels in the peatlands. Land use depends on fluctuating water levels in the river systems and depends often on an intensive macrophyte management. In the eastern part of Germany, the climate is continental. Rainfall is limited and thus mires and peatlands can only develop when they receive enough precipitation to keep water levels high. In this area, drainage infrastructure is not only used for draining the peatland but also for irrigation purposes. However, maintaining the infrastructure and managing water levels actively requires knowledge on environmentally agreed threshold levels, which consider economical and agricultural conditions adequately. Beyond that every federal state has different programs and possible financing possibilities for funding site adapted land use. In general, water boards do not have any financial scope for co-funding of programs for rewetting. Representatives from water boards suggested, that demonstration projects throughout Germany should be implemented to show that an economically feasible use of wet peatlands is possible under their specific conditions. This may lead to a better acceptance of rewetting activities in the agricultural sector and will lead to imitation effects.

Finally it can be concluded that a wise use of peatlands on a large scale is only possible if farmers and water boards together are put on the track. These groups need information on the effects of drainage based agriculture and want to see practical solutions to deal with the problem.

Clean Ryck Initiative

The main event of this initiative was the Ryck-day which was held in Greifswald the 14th of October. GMC members from Succow Foundation and Cinderella project were involved and provided an excursion into the peatlands near the city centre, only some hundred meters from the old harbor. This could sensitize citizens about peatland degradation of peatlands and its effect on atmosphere and water quality in the Ryck river. Although already late in the year, the highlight of the event was the Ryck-Jump, where more than 25 committed people jumped into the Ryck. This again to call attention to the bad water quality of this river.



Figures: During excursion (left: www.insidegreifswald.de) Claudia Oehmke and Andreas Haberl explaining a map showing the Ryck river catchment area (left) and the Ryck jump of “volunteers” (right: www.mondamo.de/topics/nordfinck/fotos/ryck-jump-2017-greifswald/)

ReedBASE innovation cluster established (Andreas Haberl, Wendelin Wichtmann)

Within the ReedBASE project, funded by the BfN / UBA advisory and assistance programme, Succow Foundation (GMC) together with its project partners from Moldova, Romania and Ukraine successfully created a network for sustainable wet- and peatland



management for biomass utilisation in the lower courses of the rivers Prut, Danube, and Dniester. From the 24th to 27th of October the 2nd ReedBASE stakeholder workshop meetings in Odessa Oblast took place. The Workshop days started in Odessa with a high-level meeting at the Institute for Market Problems and Economic and Ecological Research (IMPEER) of the Academy of Sciences, Ukraine.



Fig.: Prof. Dr. Boris Burkinsky (f.l. director of IMPEER) and Liliana Ivanova (f.r. director of Danube Center for sustainable development, Odessa regional state administration) signing the ReedBASE MoU

During the ceremonial inauguration of the innovation cluster a memorandum of understanding was signed by the project partners and founding parties. The cluster is now ready to join forces between stakeholders from administration, nature conservation, science and business to develop and implement innovation projects and startups. Advised by Succow Foundation peatland and paludiculture issues were incorporated into the structure of the cluster.

Desire project Kick off (Jan Peters, Wendelin Wichtmann)

A kick off meeting of the project “Development of Sustainable Wetland Management by Restoration and Biomass Utilisation of Peatlands in the Neman River Catchment to Improve Water Quality of the Baltic Sea (DESIRE)” was held the 23rd to 26th of October. This meeting was complemented by a stakeholder meeting at the Ministry for environment and some excursion into potential project areas.



Eutrophication of the Baltic Sea threatens essential ecosystem services, e.g. fisheries, tourism or biodiversity. River discharge is one of the main pathways of nutrients, including nutrients leaching to surface waters from agricultural soils. The Neman river has the 4th biggest catchment in the Baltic region. As the majority of nitrogen (N) and phosphorus (P) originate from diffuse sources like agricultural fields, the main goal should be to decrease the amount of nutrients leaching out to the rivers.

Figure: Kick of meeting in Vilnius with representatives from GMC, BEF Lithuania and OTOP (Poland)

Undisturbed peatlands have ability to retain nutrients. However, many of them have been drained for agriculture, forestry or peat extraction. Nowadays, they emit nutrients to waters and greenhouse gases (GHG) to the atmosphere. The project is running under the Interreg Baltic Sea Region Seed Money Programme to prepare a main project. The objective of the main project will be to restore ability of peatlands to filter water run-off and capture nutrients before they reach the Neman or a tributary river. They will transform from a source of nutrients to a sink. Within DESIRE, the ability of rewetted peatlands to remove nutrients will be enhanced by harvesting of nutrient-rich biomass from rewetted peatlands, an approach called “paludiculture”. Thus, rewetted peatlands will act as wetland buffer zones (WBZ) and harvested biomass can be used as construction material, livestock bedding or renewable fuel. All these uses will support climate change mitigation. In order to promote the paludiculture approach, special rural development policy measures will be developed.

Additionally, a road map for implementation of the WBZs will be developed for public institutions, NGOs, business initiatives, enterprises etc. It will address the eutrophication challenges in the Neman river basin. Best practice examples combining WBZs and paludiculture will be developed to raise awareness on wetlands ecosystem services. Due to high biodiversity restored peatlands become new touristic destinations (e.g. for bird-watchers) and foster regional socio-economic growth. Therefore, the project also plans to install small tourism infrastructure (e.g. trails, notice boards, etc.) at the restored peatland sites and involve local communities in the project activities in order to introduce ecosystem services (ES) of wetlands.

IMCG bulletin September 2017

The latest bulletin by IMCG recently has been published recently. Again, it provides several information on project related relevant issues and gives an overview on recently published papers on peatland protection: <http://www.imcg.net/>. Here you also find a current overview on newest publications on peatland related stuff.

Mires and Peat

The latest volume (Vol. 20) of Mires and Peat: <http://mires-and-peat.net> dealing with “Growing Sphagnum” has been updated recently. Now 7 articles are online. Use this online magazine to publish your newest results!

New publications

Federico Dragoni, Vittoria Giannini, Giorgio Ragolini, Enrico Bonari, Nicola Silvestri (2017): Effect of Harvest Time and Frequency on Biomass Quality and Biomethane Potential of Common Reed (*Phragmites australis*) Under Paludiculture Conditions: [BioEnergy Research](#) pp 1–13

Jeroen Geurts, Christian Fritz, Leon Lamers (Radboud Universiteit Nijmegen), Ab Grootjans (Radboud Universiteit Nijmegen, Rijksuniversiteit Groningen), Hans Joosten (Universiteit Greifswald) 2017: Paludicatuur houdt de polder schoon - zuiveren van oppervlaktewater en uitmijnen van fosfaatrijke bodems met riet- en lisdodde teelt

<https://www.h2owaternetwerk.nl/vakartikelen/1304-paludicatuur-houdt-de-polder-schoon-zuiveren-van-oppervlaktewater-en-uitmijnen-van-fosfaatrijke-bodems-met-riet-en-lisdodde-teelt>

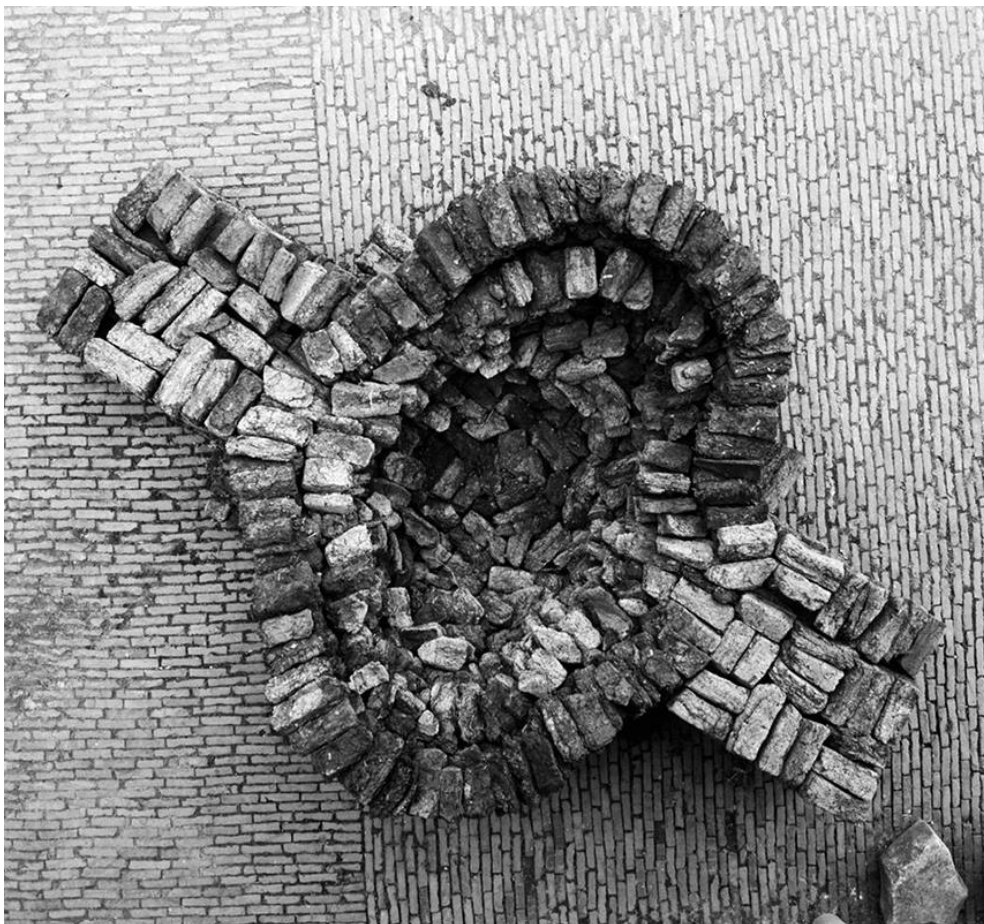


Fig.: “Vessel”, an installation presented by Ingrid Ogenstedt at the art contest “RUMOOREN!” in Greifswald