

CINDERELLA-Update VII

4th of May 2016, 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”

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 informed on the same level, to exchange information, to ask project related current questions, to prepare meetings and to make appointments as well as to prepare common activities (publications, new projects, etc.).

Conferences and workshops (upcoming)

Montpellier

The 5th International EcoSummit Congress (2016) will take place from 29th of August – 1st of September 2016. Several colleagues submitted abstracts to the session on paludiculture. <http://www.ecosummit2016.org/>. There will be a double session on peatland restoration and paludiculture as well as round table on paludiculture the other day. The contents of the double session on peatland rewetting (no 0183; PR) and paludiculture (no. 0237; PC) are shown in the following table. The PC part has seven and the PR part has 6 presentations.

Table: Contents of the combined sessions “Peatland Rewetting” (PR) and “Paludiculture” (PC).

1	Methane emissions from semi-natural, drained and re-wetted peatlands in Germany	PR	baerbel.tiemeyer@ti.bund.de
2	Development of methane exchange in a coastal fen over a period of six years after rewetting	PR	gerald.jurasinski@uni-rostock.de
3	Snapshot nine years after fen rewetting - greenhouse gas emissions of a eutrophic shallow lake	PR	daniela.franz@gfz-potsdam.de
4	Rewetting of agricultural peat soils may require additional measures to reduce nutrient and greenhouse gas emissions	PR	e.vandenzelen@science.ru.nl
5	Impact of water table level on annual carbon and greenhouse gas balances of a restored peat extraction area	PR	ulo.mander@ut.ee
6	Paludiculture as a chance for peatlands and climate: case studies from three sites in northern Germany	PR	vytas.huth@uni-rostock.de
7	The paludiculture potential of rewetted peatlands: importance of nutrient availability	PC	j.geurts@science.ru.nl
8	Paludiculture - climate smart land use on peatland	PC	Christian.schroeder@uni-greifswald.de
9	The genetic resources of paludiculture crops: a comparison among selected genotypes of Phragmites	PC	carla.lambertini@bios.au.dk

	australis, Arundo donax, Arundo plinii and Typha latifolia		
10	Salinity pulses and improved root growth: Promising management tools to increase benefits from Paludiculture?	PC	cfritz@science.ru.nl
11	Nutrient preferences of paludicrops: insights from growth responses to nitrogen and the photosynthesis-nitrogen relationship	PC	brian.sorrell@bios.au.dk
12	Quality of Paludiculture Plants for Bioenergy - Experiences from Rewetted Peatlands in Northeastern Germany	PC	oehmke@paludikultur.de
13	Economic viability of paludiculture in case of reed harvest and Sphagnum farming	PC	wichmann@uni-greifswald.de

SWS Potsdam

The 11th annual European Chapter meeting of the Society of Wetlands Scientists (SWS) will be held in Potsdam near Berlin, Germany, 17-20 May 2016 There will be some presentations on paludiculture issues. See current program on the homepage: <http://www.sws.org/europe-chapter>

News from the project

CINDERELLA Project meeting Denmark: end of May 2016

Brian Sorrell is preparing our project meeting in Denmark. **Please inform him about your participation and travel details as soon as possible!**

Goals of the meeting:

- Intensify cooperation
- Presentation of project activities and other issues of Aarhus University to project partners
- Exchange of information on project activities and first results of all partners
- intensive work shops (planning and discussing joint project activities – open questions for joint research, handling and structuring of data, work packages output)

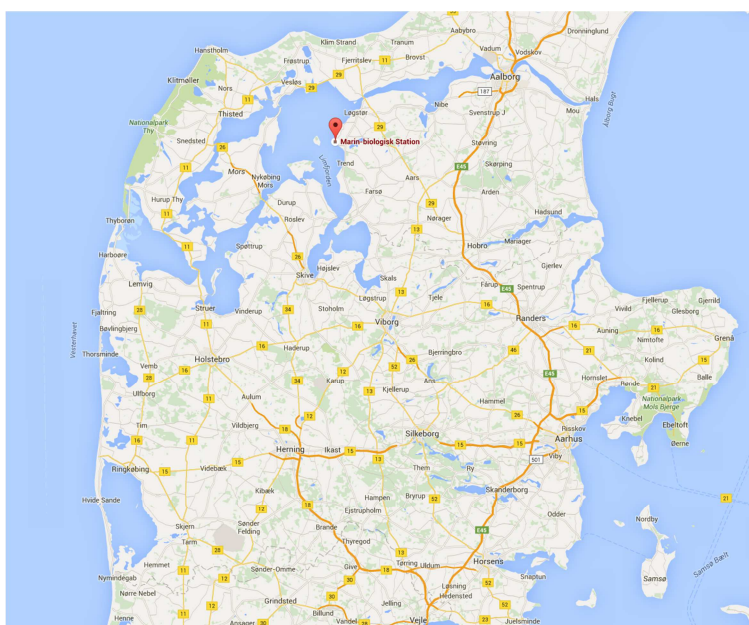
Preliminary time schedule:

Date	Activity
Monday 23 rd	Participants drive to Rønbjerg field station Evening: Welcome, informal catch-up and dinner
Tuesday 24 th	<u>Morning</u> : Discussions and Presentations at Rønbjerg <ul style="list-style-type: none"> • General status quo • State of the art of country working groups (DK, S, NL, D) Workshops for partners involved in joint work packages <u>Afternoon</u> : Excursion to Vejlerne Nature Reserve, a large <i>Phragmites</i> wetland and one of Denmark's largest nature reserves. <u>Evening</u> : Participants dinner at field station
Wednesday 25 th	<u>Morning</u> : Discussions and Presentations at Rønbjerg <ul style="list-style-type: none"> • Exchange of experiences, information on project activities • Matters arising, future directions

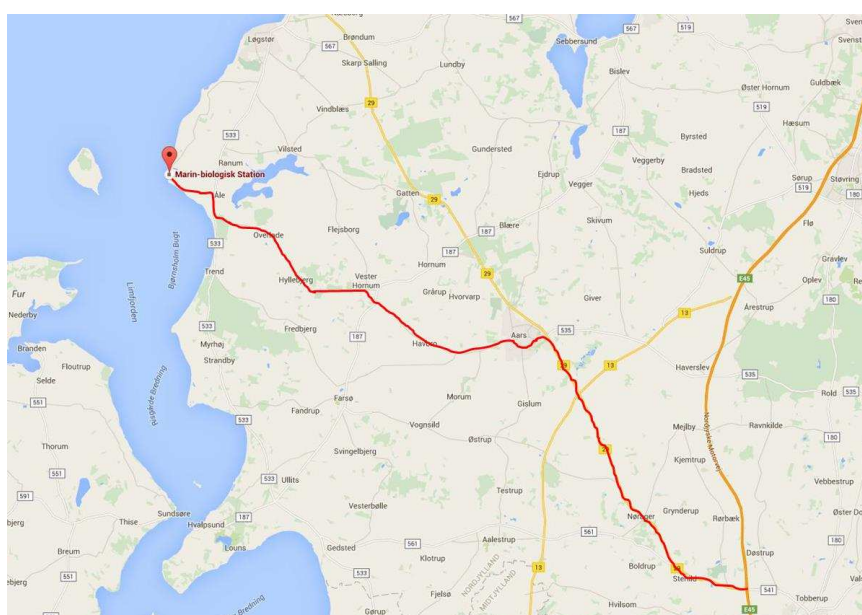
	<p><u>Afternoon:</u> Excursion to Lille Vildmose</p> <p><u>Evening:</u> Dinner at local restaurant and possibility to travel home.</p>
Thursday 26 th	<p><u>Morning:</u> Leave Rønbjerg early and drive to Påskehøjgård research farm</p> <p>Participants continue home.</p>

Practical:

Venue: The workshop will be held at the Rønbjerg field station of Aarhus University, about 2 h drive north of Aarhus (<http://bios.au.dk/en/faciliteter-en/roenbjerg-en/>). The station is easy to find – driving directions as follows (address for your GPS is **Livøvej 141, DK-9681 Ranum, Denmark**):



Leave the E45 motorway on Highway 29, at the town of Aars leave Highway 29 for the coast:



Activities in Nijmegen

In the beginning of April, the paludiculture pilot site in Zegveld was rearranged to have a better manageable set-up with smaller plots. New Phragmites rhizomes were already planted and new Typha plants will be planted next week. Only last year's demonstration plots with Phragmites and Typha remained. We will also create a small demonstration plot with Zizania next week. The difference with last year is that a high water level (+20 cm) was immediately installed after planting to overcome drought problems and weeds. Besides that, the water level is continuously monitored by a levellogger now. In June we will establish another pilot site (Ilperveld) with Typha angustifolia in field mesocosms where water level can be regulated very accurately.

We are also conducting a N fertilization experiment in the greenhouse with rewetted soil cores from 2 different peat meadow areas (Zegveld and Butefjild). Next to control treatments without plants, Typha and Phragmites were planted to see the effect of the different N treatments (0, 50, 150 and 450 kg N ha⁻¹ y⁻¹) on nutrient uptake, plant growth, and C emissions. The first preliminary results seem promising, with lower CH₄ emissions from Typha and Phragmites cores compared to bare soils, disappearance of algae in the surface water of the Typha cores, and optimal plant growth at 150 kg N ha⁻¹ y⁻¹. Another ongoing experiment with rewetted peat cores from the same peat meadow areas focuses on CH₄ emissions and nutrient mobilization with and without top soil removal (0, 5, 10, 15, 20 and 25 cm removal).

Activities in Greifswald

The Greifswald team just installed a test field for Typha. End of March in total 288m² peatland have been excavated. At four sites, the topsoil has been removed to make inundation conditions possible. Each site has some hydraulic gradient. End of May (eventually beginning of June) Typha seedlings (*T. angustifolia*) will be planted. Main research questions deal with the demand of Typha angustifolia for site conditions (nutrients, water) for cultivation which will be used for industrial purposes on one hand and with the nutrient retention and elimination of such small scaled constructed wetlands.

Some recent project relevant publications

There has been a PhD thesis at Kiel university "Quality of reed (*Phragmites australis*) as thatching material" (A. Wöhler-Geske, 2013):

Chapter 2: Use of image analysis for determination of morphological parameters of reed

Chapter 3-5: Reed (*Phragmites australis*) as thatching material.

Part I: Morphological, chemical and degradation parameters of reed

Part II: Characterization of decay by white rot and importance of chemical and morphological properties

Part III: Characterization of anaerobic fermentation kinetics and importance of chemical and morphological properties

Some of the relating publications:

Wöhler-Geske, A., et al., 2013. Use of image analysis for determination of morphological parameters of thatching reed. *Landtechnik*, 68 (2), 108–111.

Wöhler-Geske, A., Moschner, C.R., Gellerich, A., Militz, H., Greef, J.-M., Hartung, E., 2016. Yield, fermentation kinetics and the role of quality properties of thatching reed (*Phragmites australis*) during discontinuous anaerobic fermentation. *Industrial Crops and Products* 83, 701–709. doi:10.1016/j.indcrop.2015.12.041

Wöhler-Geske, A., Moschner, C.R., Gellerich, A., Militz, H., Greef, J.-M., Hartung, E., 2016. Provenances and properties of thatching reed (*Phragmites australis*). *Landbauforschung Applied Agricultural and Forestry Research*. DOI: 10.3220/LBF1457686750000

The book on “paludiculture, productive use of wet peatlands” is now available at the publisher: <http://www.schweizerbart.de/publications/detail/isbn/9783510652839>

Wichtmann, W., Schröder, C. & H. Joosten (2016): *Paludiculture – productive use of wet peatlands. Climate protection, biodiversity, regional economic benefits*, Schweizerbart Science Publishers, 272p.