

# WETSCAPES CONFERENCE

Understanding the ecology of restored fen peatlands for protection and sustainable use

September, 10 to 13, 2019

Rostock, Germany

[www.wetscapes.de/conference](http://www.wetscapes.de/conference)

	Sep 10	Sep 11	Sep 12	Sep 13
Morning	Greeting and Joint plenary session "Peatland rewetting and water quality I"	Excursions	Joint plenary session "Peatland rewetting and hydrology"	Joint plenary session "Peatland rewetting and vegetation"
	Coffee Break		Coffee Break	Coffee Break
	Joint plenary session "Peatland rewetting and water quality II"		Joint plenary session "Peatland rewetting and microbiota"	Joint plenary session "Peatland rewetting and greenhouse gas emissions"
	Lunch Break		Lunch Break	Lunch Break
Afternoon	Joint plenary session "Peatland rewetting, land management and policy"		Parallel sessions "Greenhouse gas emission & its drivers I" & "Plant growth & decomposition I"	Parallel sessions "Peatland management" & "Element cycling & export" & Wrap up
	Coffee Break		Coffee Break	Coffee Break
	Parallel sessions "Peatland ecohydrology" & "Mapping peatlands"		Parallel sessions "Greenhouse gas emission & its drivers II" & "Plant growth & decomposition II"	
Evening	Poster session & Get together		Public film screening „Magie der Moore“	Conference dinner

## September 10, 2019

9.00 Greetings

W. Venohr (Ministry of Education, Science and Culture Mecklenburg-Western Pomerania)

J. Flasbarth (State Secretary, Federal Ministry for the Environment, Nature Conservation and Nuclear Safety)

### 9.30 - 12.00 Joint plenary session "Peatland rewetting and water quality"

9.30 Keynote P. Van Cappellen, University of Waterloo, Canada: Understanding Soil Organic Matter Decomposition: Back to Basics

10.15 Coffee break

10.40 R. Strehse, University of Rostock, Germany: Influence of salt water on composition and molecular structure of dissolved organic matter (DOM)

10.55 D. Zak, Aarhus University, Denmark: Unravelling the importance of polyphenols in rewetted riparian peatlands

11.10 R. Vroom, Radboud University, The Netherlands: The importance of water quality in Sphagnum farming on rewetted peatlands

- 11.25 A. Smolders, B-Ware Research Centre, Radboud University Nijmegen, The Netherlands: Rewetting agriculturally used peat soils: biogeochemistry, management dilemmas and solutions
- 11.40 C. Fritz, Radboud University Nijmegen, The Netherlands: Essential water quality parameters controlling Sphagnum lawn development in rewetted fen and bog peats

12.00 *Lunch break*

**13.00 - 15.15 Joint plenary session “Peatland rewetting, land management and policy”**

- 13.00 [Keynote M. Silvius, Indonesia Country Representative Global Green Growth Institute \(GGGI\), Indonesia: Jurisdictional and landscape-wide approach to tropical peatland restoration](#)
- 13.30 S. Page, University of Leicester, UK: Peatland smallholder agriculture in Indonesia: scenarios for improved land management
- 13.45 D. Sari, James Cook University, Australia: Landscape audit to reconcile competing claims on the peatlands of Sumatra
- 14.00 D. Kopansky, UN Environment, Kenya & F. Tanneberger, Greifswald Mire Centre, Germany: The Global Peatlands Initiative
- 14.15 M. Hohlbein, University of Greifswald, Germany: Next steps to implement paludiculture in Mecklenburg-Vorpommern

**14.30 Plenary talk R. Hüttl, Scientific Director of the German Research Centre for Geosciences (GFZ) in Potsdam, Germany**

15.15 *Coffee break*

**15.40 - 17.30 Parallel session “Peatland ecohydrology”**

- 15.40 [Keynote F. Rezanezhad, Ecohydrology Research Group, University of Waterloo, Canada: Hydrogeochemical reactivity of the peatland soils](#)
- 16.10 E. Wallor, Leibniz Centre for Agricultural Landscape Research, Germany: Advances in hydrological modelling of drained and cultivated fen soils
- 16.25 O. Dietrich, Leibniz Centre for Agricultural Landscape Research, Germany: Impacts of the water table elevation on water balance components of peatlands
- 16.40 B. Lennartz, University of Rostock, Germany: Soil degradation determines hydro-biogeochemical transformation processes in peatlands
- 16.55 M. Koskinen, University of Helsinki, Finland: Redox potential in drained and undrained mesotrophic fen

**15.40 - 17.30 Parallel session “Mapping peatlands”**

- 15.40 [Keynote R. Artz, Ecological Sciences, The James Hutton Institute, UK: Mapping peatlands remotely - resolution, scale and the quality of ground observations for model training determine the outcome](#)
- 16.10 T. Morley, National University of Ireland Galway, Ireland: The use of Historic surveys for land use change detection and future peatland change calculations
- 16.25 S. Rannow, Müritz National Park Authority, Germany: Rewilding peatlands in Müritz National Park
- 16.40 T. Orlov, Sergeev Institute of Environmental Geoscience, Russia: Satellite and airborne monitoring of the rewetting of disturbance peatlands (Orshinskiy Moh case study)
- 16.55 M. Kaiser, University of Greifswald, Germany: Mapping greenhouse gas emissions from peatlands using biotope maps and satellite imagery

**17.15 - 20.00 Poster session & Get together with pretzel and beer**

**September 11, 2019 Field excursions**

- Hike through an alder carr (half-day)
- Trip to a coastal mire and Baltic Sea beach
- Historic and recent land use of river valley fens
- Coastal flood mire and research at the Greifswald Mire Centre

**September 12, 2019**

**9.00 - 10.35 Joint plenary session “Peatland rewetting and hydrology”**

- 9.00 [Keynote C. Evans, Peatland and Coastal Biogeochemistry Group, Centre for Ecology and Hydrology, Environment Centre Wales, Bangor, UK](#)
- 9.45 J. Conolly, Dublin City University, Ireland: tbd
- 10.00 E. Bijkerk, Trinity College Dublin, Ireland: Understanding Calcareous Fen Ecohydrology for Protection and Sustainable use
- 10.15 R. Temmink, Radboud University, The Netherlands: Restoring human-induced alternative stable states in rewetted bog remnants

10.35 *Coffee break*

**11.00 - 12.35 Joint plenary session “Peatland rewetting and microbiota”**

- 11.00 [Keynote S. Liebner, Geomicrobiology, German Research Centre for Geosciences \(GFZ\) in Potsdam, Germany: Microbial response to peatland degradation and rewetting](#)
- 11.30 R. Conrad, Max-Planck-Institute for Terrestrial Microbiology, Germany: Pathways of acetate consumption and methanogenesis in Amazonian lake sediments
- 11.45 H. Wang, University of Greifswald, Germany: Congruent effects of rewetting on pro- and eukaryotic peat communities in formerly drained temperate fens
- 12.00 M. Pester, Leibniz Institut DSMZ-German Collection of Microorganisms and Cell Cultures, Germany: Microbial dark matter involved in cryptic sulfur cycling of peatlands and rice paddies
- 12.15 E. Verbruggen, University of Antwerp, The Netherlands: Microbiome recovery in rewetted fens

12.35 *Lunch break*

**13.35 - 15.10 Parallel session “Greenhouse gas emission & its drivers I”**

- 13.35 [Keynote M. Strack, Geography and Environmental Management, University of Waterloo, Canada: tbd](#)
- 14.05 B. Tiemeyer, Thünen Institute of Climate-Smart Agriculture, Germany: Carbon and greenhouse gas balance of a black alder (*Alnus glutinosa*) ecosystem on organic soils
- 14.20 D. Köhn, University of Rostock, Germany: Carbon dioxide and methane exchange of soils, trees and ditches in drained and rewetted fens
- 14.35 M. Weil, University of Greifswald, Germany: Seasonal dynamics of methane emitting microbiomes in drained and re-wetted fens of Northern Germany
- 14.50 M. Davey, Norwegian Institute of Bioeconomy Research, Norway: Methane production in Central European fens is linked to edaphic properties, not large scale climatic gradients

**13.35 - 15.10 Parallel session “Plant growth & decomposition I”**

- 13.35 [Keynote N. Roulet, McGill University, Canada: Seasonal and inter-annual variability in the carbon exchange and hydrology over 20 years in the Mer Bleue bog](#)
- 14.05 S. Schwieger, University of Greifswald, Germany: Production and decomposition of plant biomass in three temperate peatland types of Central Europe
- 14.20 G. Blume-Werry, University of Greifswald, Germany: Root growth phenology of common sedge species in response to increasing levels of nutrient availability
- 14.35 A. Mrotzek, University of Greifswald, Germany: Roots, tissues, cells and fragments – how to characterize peat from drained and rewetted fens
- 14.50 S. Gribbe, University of Greifswald, Germany: Digital visualisation techniques of roots in peat

15.10 *Coffee break*

**15.35 - 17.10 Parallel session “Greenhouse gas emission & its drivers II”**

- 15.35 P. Mathijssen, University of Munster, Germany: Effects of carbon exchange uncertainties in estimating peatland radiative forcing over the Holocene
- 15.50 C. Gutekunst, University of Rostock, Germany: The effect of topsoil removal and Sphagnum spreading on the net greenhouse gas balance of a rewetted peat bog
- 16.05 S. Paul, University of Basel, Switzerland: Do cover fills reduce peat oxidation and carbon emissions from managed organic soils?
- 16.20 A.-H. Purre, Tallinn University, Estonia: Spatial and interannual variations of CO<sub>2</sub> exchange on rewetted milled peatlands
- 16.35 W. Horwath, University of California, United States: Restoring degraded peatlands with rice cultivation: Evaluating greenhouse gases and soil C dynamics
- 16.50 B. Foereid, Norwegian Institute of Bioeconomy Research, Norway: Modelling carbon cycling in wetlands

**15.35 - 17.10 Parallel session “Plant growth & decomposition II”**

- 15.35 D. Michaelis, University of Greifswald, Germany: A focus on displacement peat, peat losses, and new accumulation in a rewetted, former drained fen
- 15.50 M. Heck, University of Freiburg, Germany: In-vitro biomass production of different peat moss species
- 16.05 M. Krebs, University of Greifswald, Germany: Parameters for rapid Sphagnum lawn establishment
- 16.20 G. Granath, Uppsala University, Sweden: Processes behind peat mosses response to elevated temperature
- 16.35 A. Anadon-Rosell, University of Greifswald, Germany: Growth and xylem anatomical adjustments of *Alnus glutinosa* after the rewetting of a drained swamp

16.50 M. Smiljanić, University of Greifswald, Germany: Intra-annual growth dynamics of alder (*Alnus glutinosa*) from rewetted and drained alder carrs in northeastern Germany

### 19.30 - 23.00 Conference dinner during a harbour tour

September 13, 2019

#### 09.00 - 10.30 Joint plenary session "Peatland rewetting and vegetation"

09.00 Keynote S. Pangala, Royal Society Dorothy Hodgkin Research Fellow, Lancaster Environment Centre, Lancaster University, UK: The role of lateral and tree transport in methane cycling in tropical peatlands

09.45 T. Scharnweber, University of Greifswald, Germany: Alder tree rings as recorders of environmental and climatic fluctuations- a review

10.00 F. Tanneberger, University of Greifswald, Germany: Peat formation under pressure? Effects of machine mowing on soil and below-ground plant properties in temperate fens

10.15 V. Huth, University of Rostock, Germany: Using plot-scale greenness and plant height to monitor vegetation development in peatland restoration trials

10.35 *Coffee break*

#### 11.00 - 12.20 Joint plenary session "Peatland rewetting and greenhouse gas emissions"

11.00 Keynote A. Günther, Landscape Ecology and Site Evaluation, University of Rostock, Germany: Peatland rewetting: Balancing methane emissions against carbon dioxide savings

11.30 F. Koebsch, University of Rostock, Germany: Drought events in rewetted peatlands: Can rapid vegetation succession compensate for respiratory CO<sub>2</sub> losses?

11.45 J. Christiansen, University of Copenhagen, Denmark: Patterns of greenhouse gas fluxes for a restored wooded wetland in Denmark

12.00 T. Rankin, McGill University, Canada: Controls on Autotrophic and Heterotrophic Respiration in an Ombrotrophic Bog

12.20 *Lunch break*

#### 13.20 - 15.10 Parallel session "Peatland management"

13.20 Keynote J. Geurts, Radboud University, The Netherlands: Experiences from paludiculture experiments in the Netherlands: which factors influence C fixation and CH<sub>4</sub> emission?

13.50 L. Rochefort, Université Laval, Canada: The challenges of restoring fens in Canada

14.05 T. Newman, University of Leicester, UK: The impacts of long term drainage and agriculture on the carbon dynamics of fen peatlands in East Anglia, UK

14.20 J. Wu, Memorial University of Newfoundland, Canada: Can abandonment be a good option for restoring greenhouse sink function of drained peatlands?

14.35 P. Singh, Masaryk University, Czech Republic: Can moss removal reverse undesired succession under different nutrient levels in rich fens?

14.50 H. Schimmel, University of Bonn, Germany: Legacy effects of historical land use on carbon stability in Flanders Moss' peatlands

#### 13.20 - 15.10 Parallel session "Element cycling & export"

13.20 Keynote K.-H. Knorr, Ecohydrology and Biogeochemistry Group, Institute of Landscape Ecology, University of Munster, Germany: Evaluating the relevance of redox properties of peat organic matter as a control on anaerobic carbon mineralization

13.50 P. Leinweber, University of Rostock, Germany: Mass spectrometric investigations of litter decomposition and peat formation

14.05 J. Prüter, University of Rostock, Germany: Transformation processes of phosphorus along transects in the coastal region of Northeastern Germany

14.20 W. Negassa, University of Rostock, Germany: Phosphorus speciation in drained and rewetted peatlands: chemical and spectroscopic analyses

14.35 A. Markina, Institute of Forest Science of Russian Academy of Science, Russia: Dissolved organic carbon in surface waters in drained and rewetted parts of a peatland in Moscow

14.50 S.C. Möckel, University of Iceland, Iceland: Tephra deposits in peatlands – a neglected impact factor of carbon dynamics?

#### 15.10 Wrap-up and conclusion

15.30 *Coffee break*

\*At the end of each session, 5 minutes are scheduled for summarizing key messages.