

Wetter is better:

rewetting of minerotrophic peatlands increases plant production and moves them towards carbon sinks

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Background

- in peatlands more biomass is produced than decomposed under anoxic conditions
- draining peatlands releases stored carbon
- rewetting may or may not restore the original carbon sink
- patterns of plant production and decomposition in rewetted peatlands and how they compare to drained conditions remain largely unexplored

Research question

Does rewetting create conditions that allow peat formation again and a return to a carbon sink?

alder forest



drained



rewetted

percolation fen



drained



rewetted

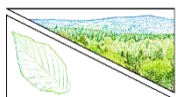
coastal fen



drained



rewetted



Experimental
Plant Ecology Lab
University
Greifswald

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Wissen lockt. Seit 1456

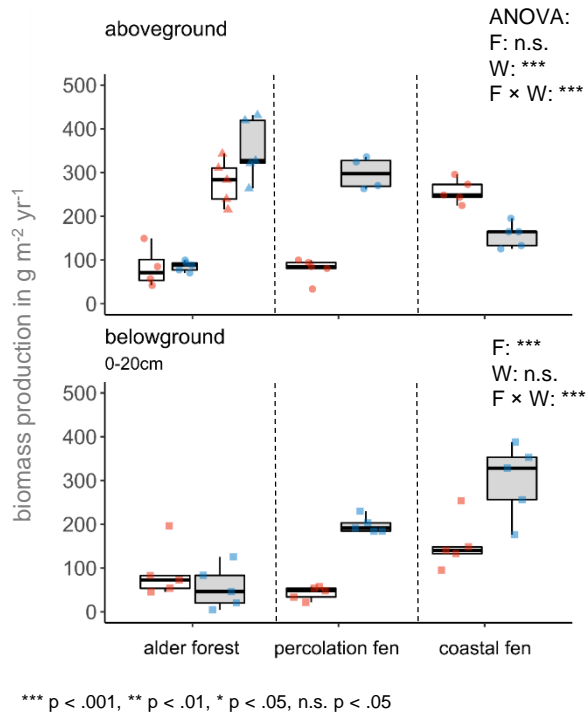


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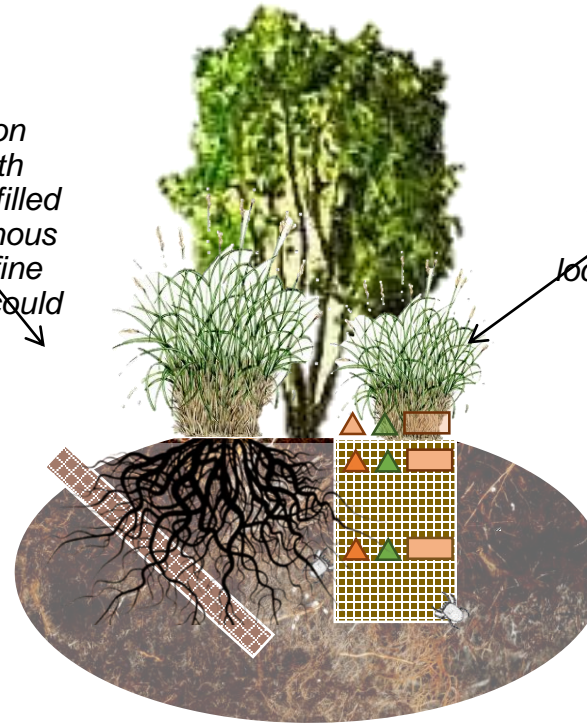
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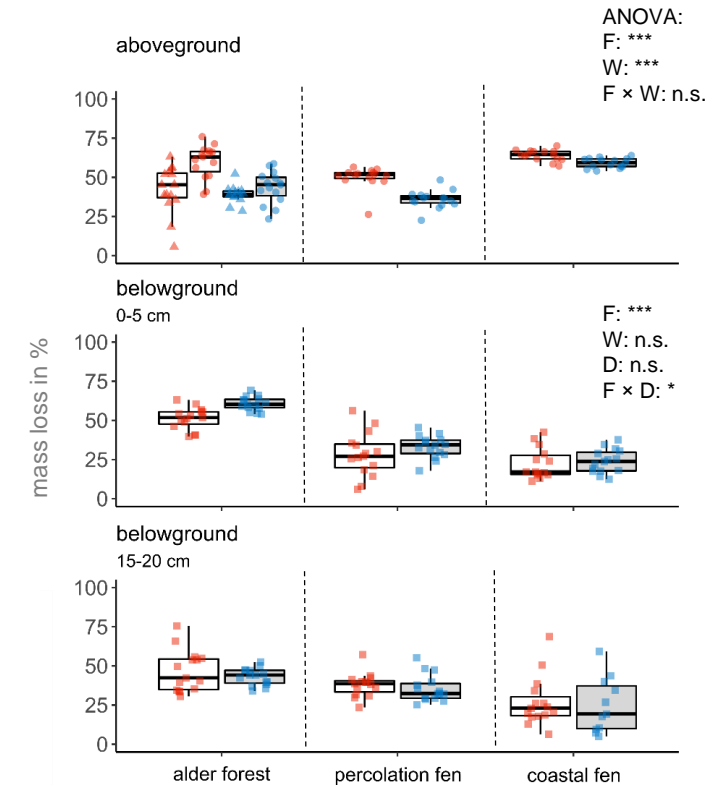
How does rewetting affect annual plant production and decomposition in three typical fen types ?



root production
measured with
ingrowth cores filled
with autochthonous
peat in which fine
roots (<2 mm) could
grow



decomposition
measured with
litter bags with
local shoot (above)
& root (below)
material



- production increased in rewetted sites
- fine root production made up to 66% of the total biomass production
-> important peat forming elements

- decomposition is higher aboveground in drained site
- rewetting had no significant effect on belowground decomposition

Main messages

1. Rewetting increased biomass production and supported the peatlands carbon sink functions
2. High biomass production compensated for decomposition losses even during a dry year
3. Root biomass was more important for organic matter accumulation than shoot biomass



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We thank the whole Wetscapes consortium for their contribution to this study by providing data and expertise.
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Discussion

How to deal with these recent extreme years, with high temperatures and dry conditions?



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@SarahSchwieger
#shareEGU20

