Supplementary Material

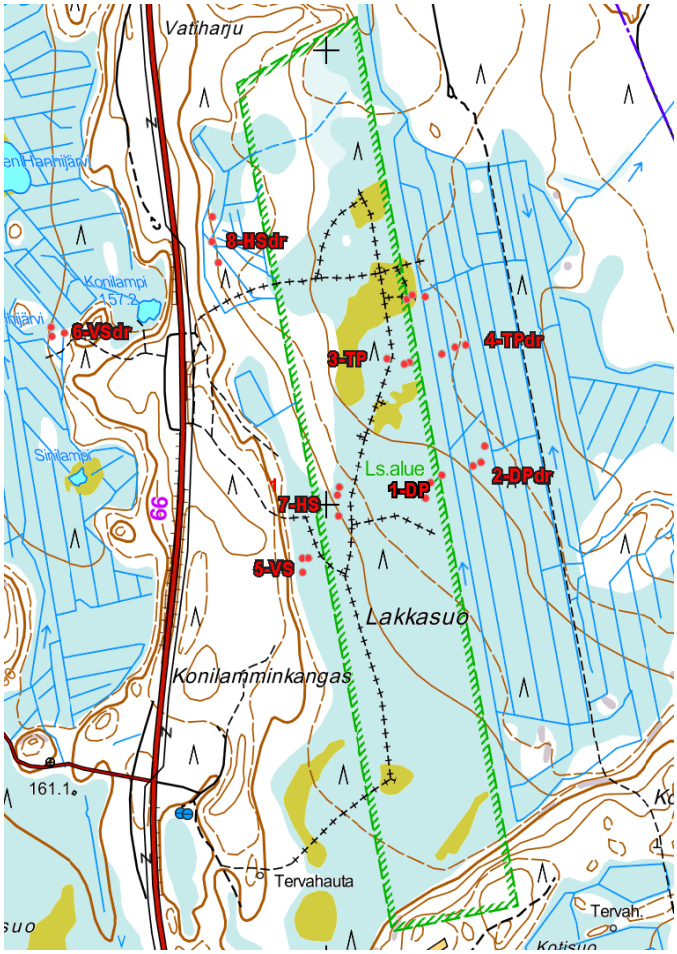
Responses of fine-root biomass and production to drying depend on wetness and site nutrient regime in boreal forested peatland

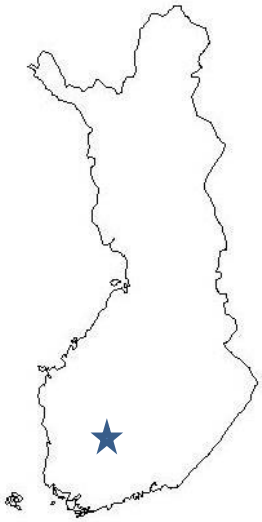
Maija Lampela, Kari Minkkinen, Petra Straková, Rabbil Bhuiyan, Wei He, Päivi Mäkiranta, Paavo Ojanen, Timo Penttilä, Raija Laiho*

***Correspondence:** Raija Laiho: raija.laiho@luke.fi

1 Supplementary Figures

Supplementary Figure S1. Study site locations in the Lakkasuo area. The site types with their drained counterparts: 1-2) DP, dwarf-shrub pine bog, 3-4) TP, tall-sedge pine fen, 5-6) VS, Vaccinium myrtillus spruce swamp, 7-8) HS, herb-rich hardwood-spruce swamp. The three plots in each site are marked with red dots. The green ruling borders a nature conservation area. Drainage ditches are shown with straight blue lines. For general information on the area, see Laine et al. (2004).





Supplementary Figure S2. Study sites: a) DP, dwarf-shrub pine bog, b) DPdr, drained dwarf-shrub pine bog, c) TP, tall-sedge pine fen, d) TPdr, e) VS, *Vaccinium myrtillus* spruce swamp, f) VSdr, g) HS, herb-rich hardwood-spruce swamp and h) HSdr. Photos: Kari Minkkinen.


c) TP


d) TPdr

e) VS

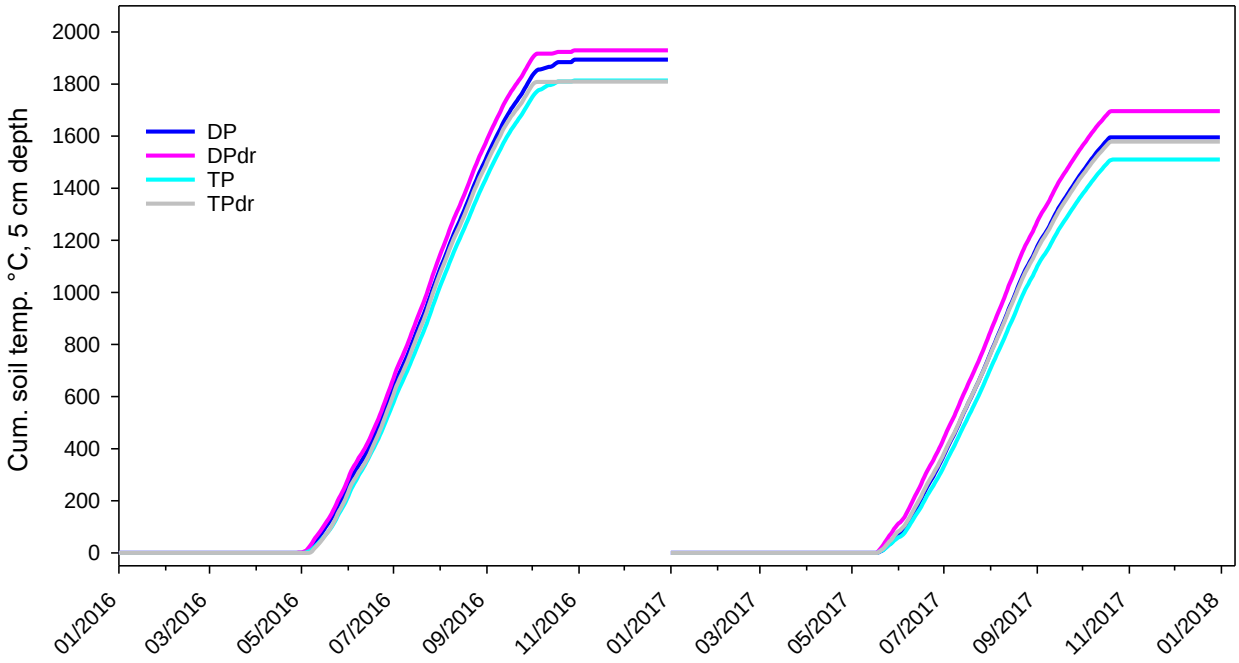
f) VSdr

g) HS

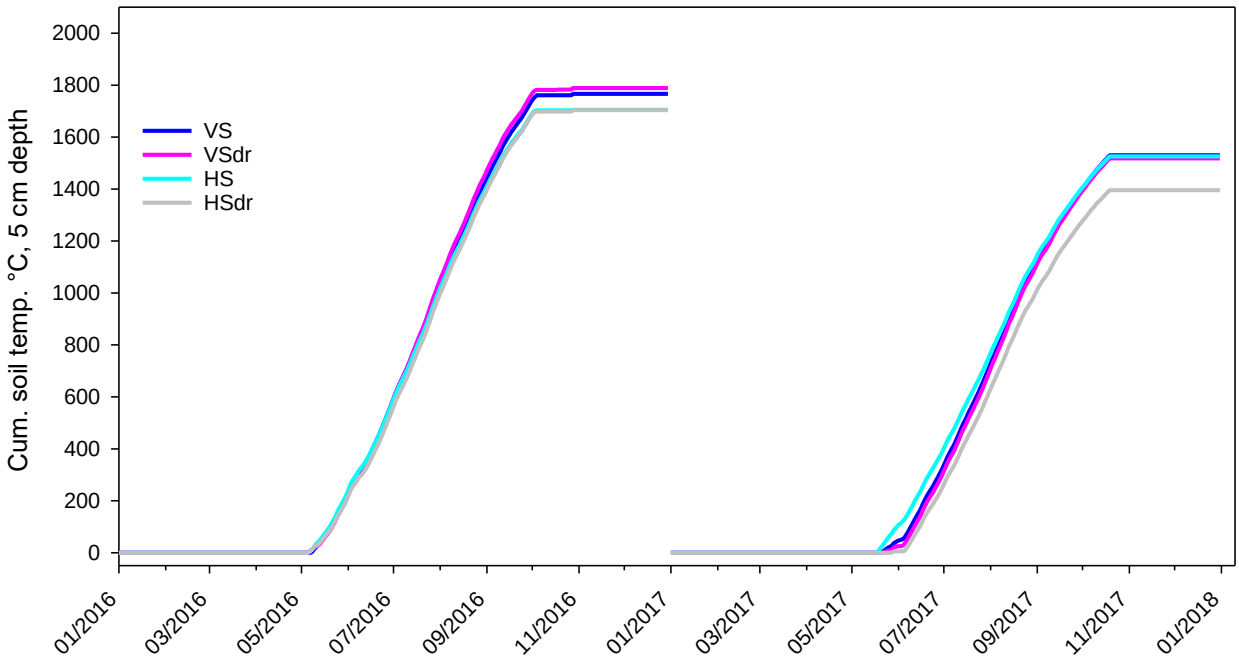
h) HSdr

Supplementary Figure S3. Cumulative soil temperature sums (d.d. >5°C) in 5 cm depth at the a) DP, DPdr, TP and TPdr sites and b) VS, VSdr, HS and HSdr sites, for the two growing seasons, 2016 and 2017, of the ingrowth core incubation period.

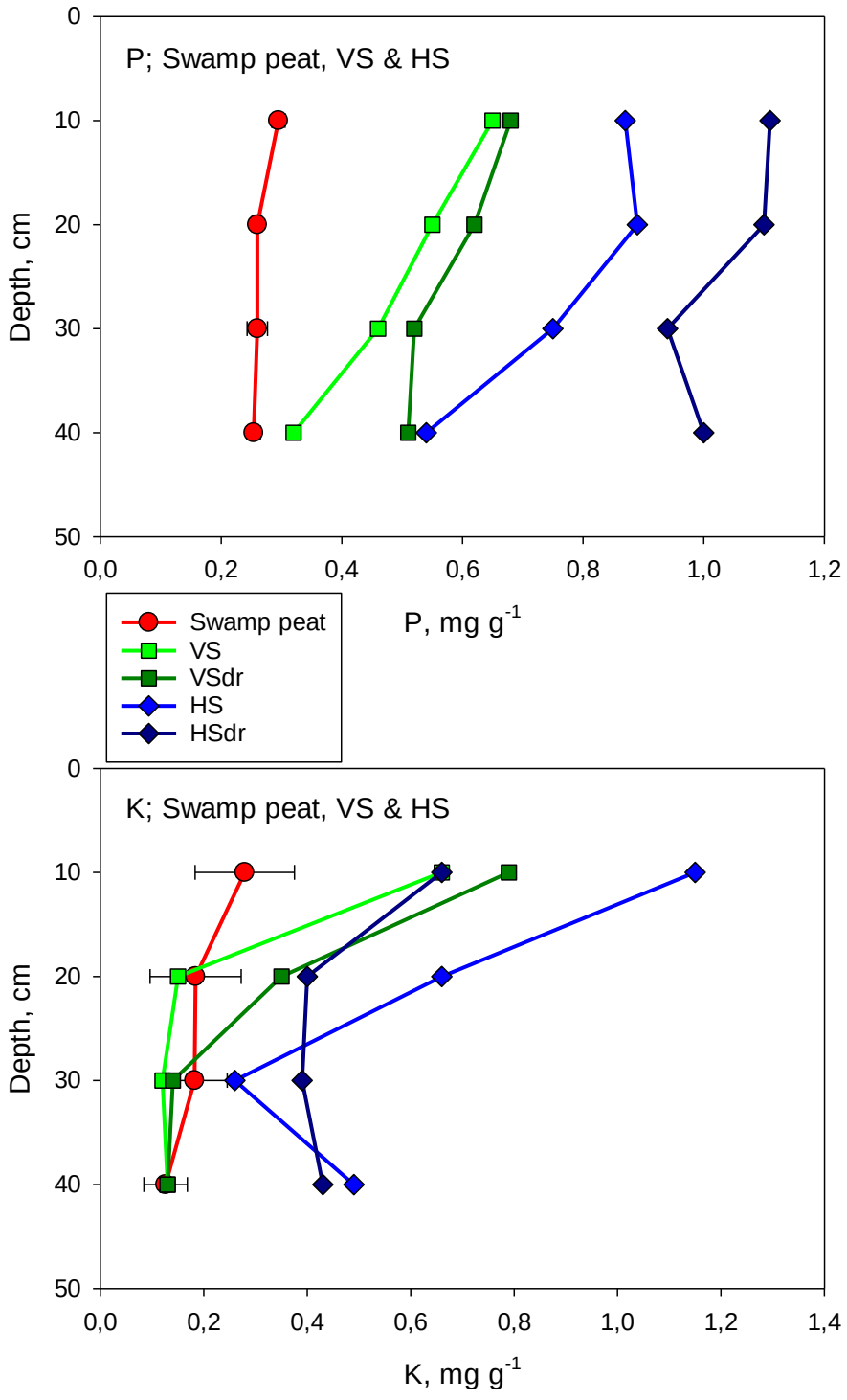
a)

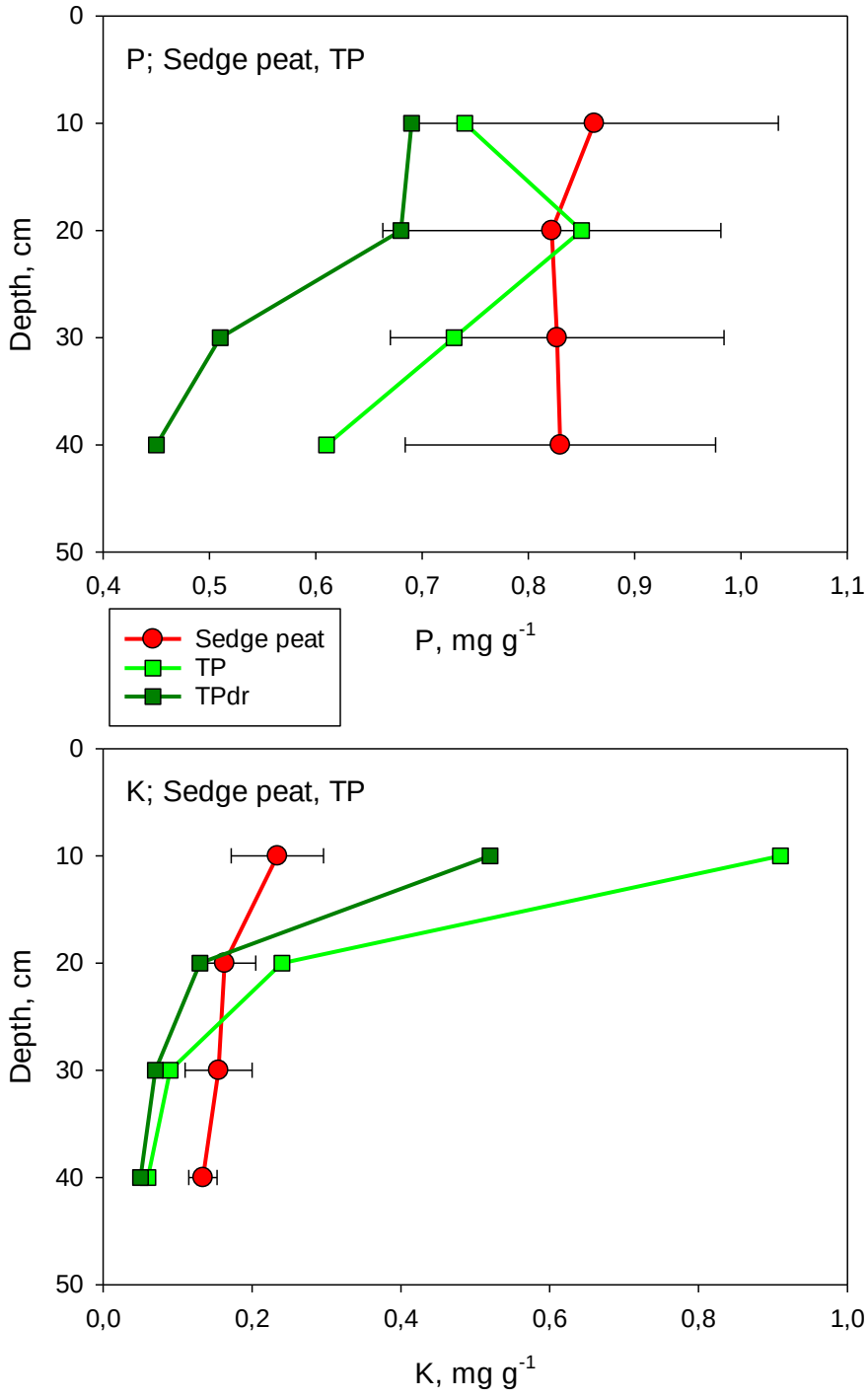


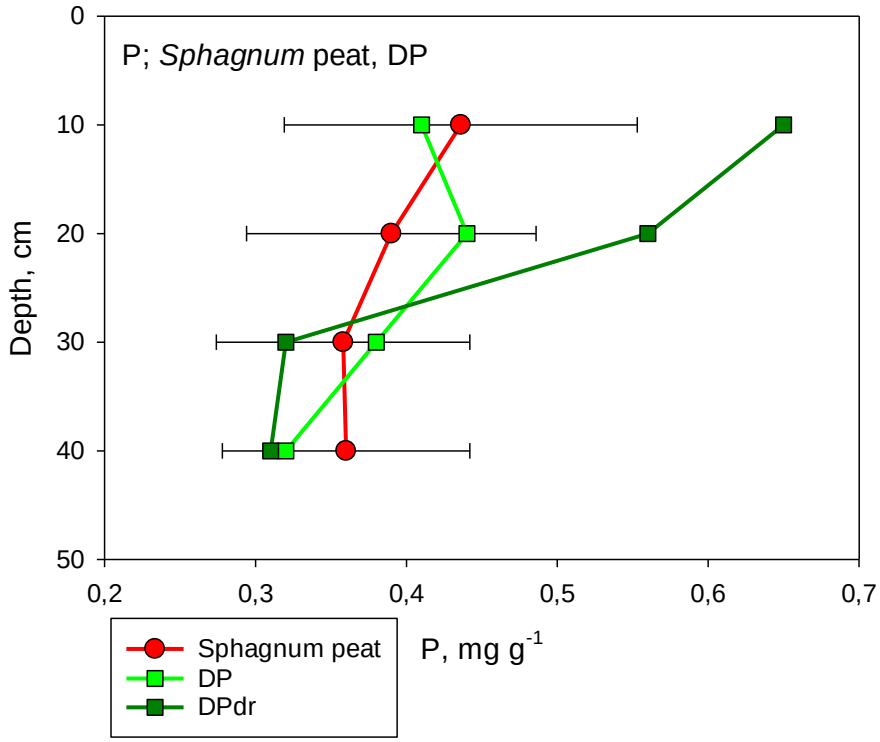
b)

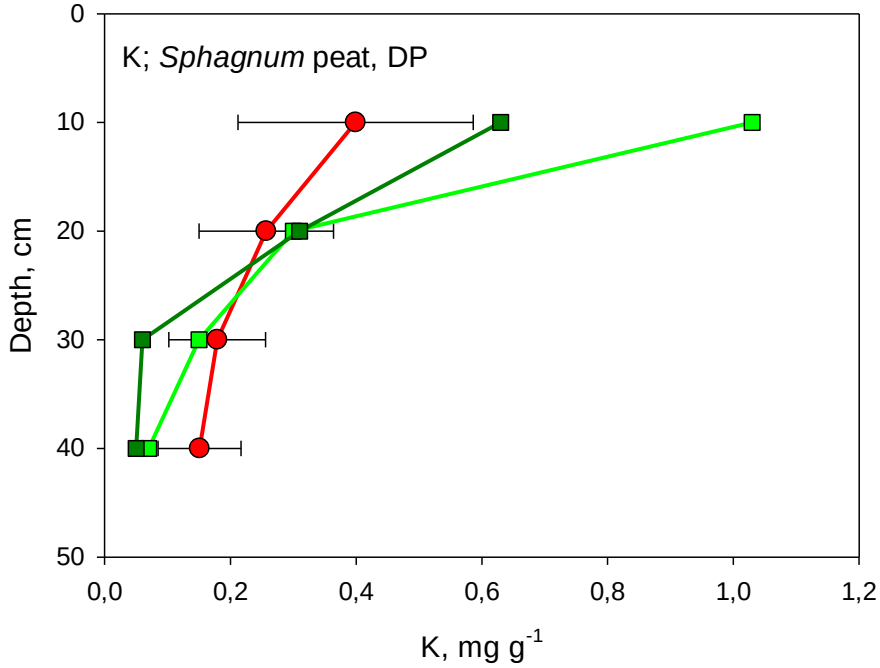


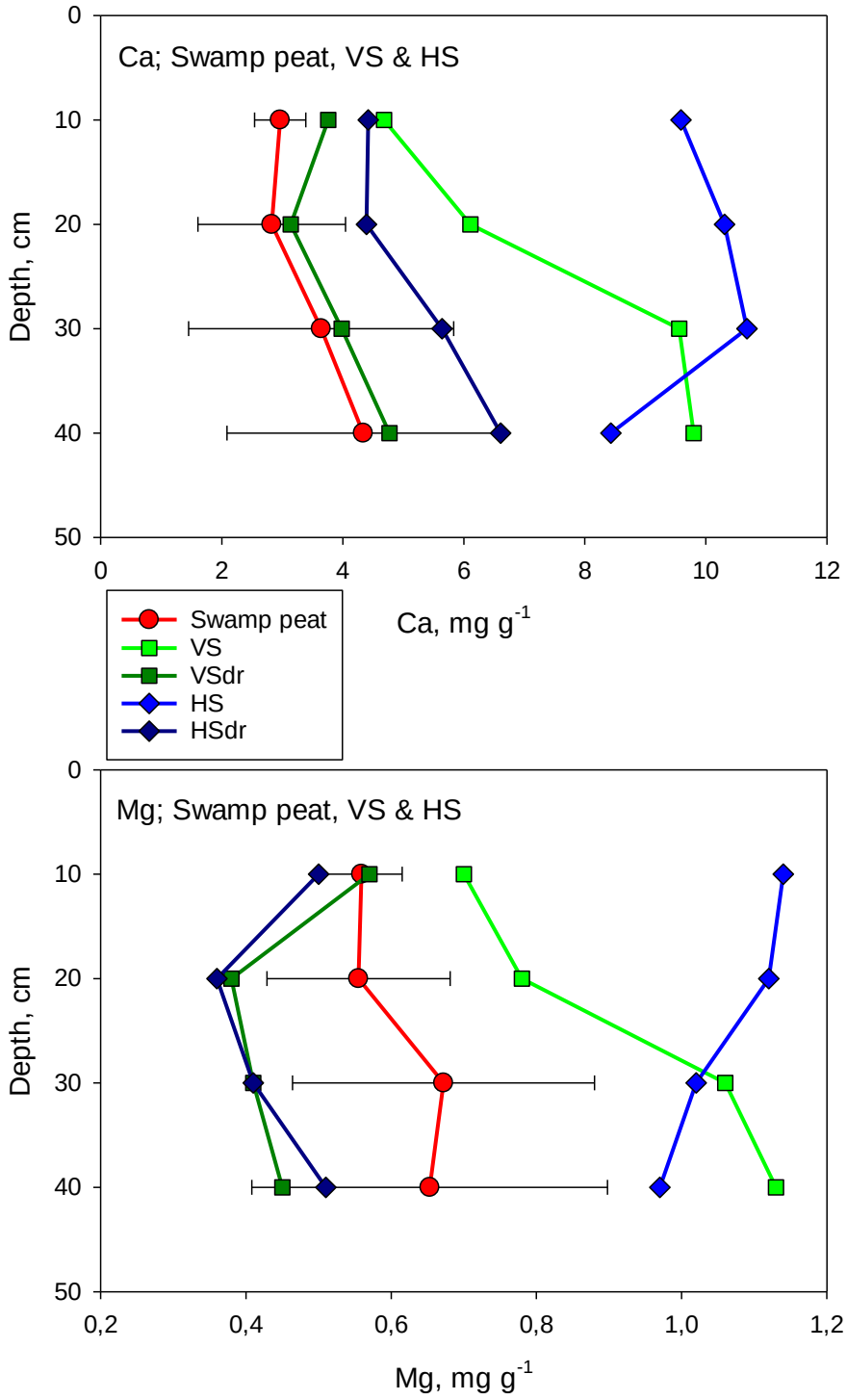
Supplementary Figure S4. P, K, Ca and Mg concentration profiles measured from the sites and from the peat of some incubated ingrowth cores. Site data are from three pooled peat cores per site, and ingrowth core data are from 4-6 cores per peat type, incubated at different sites.

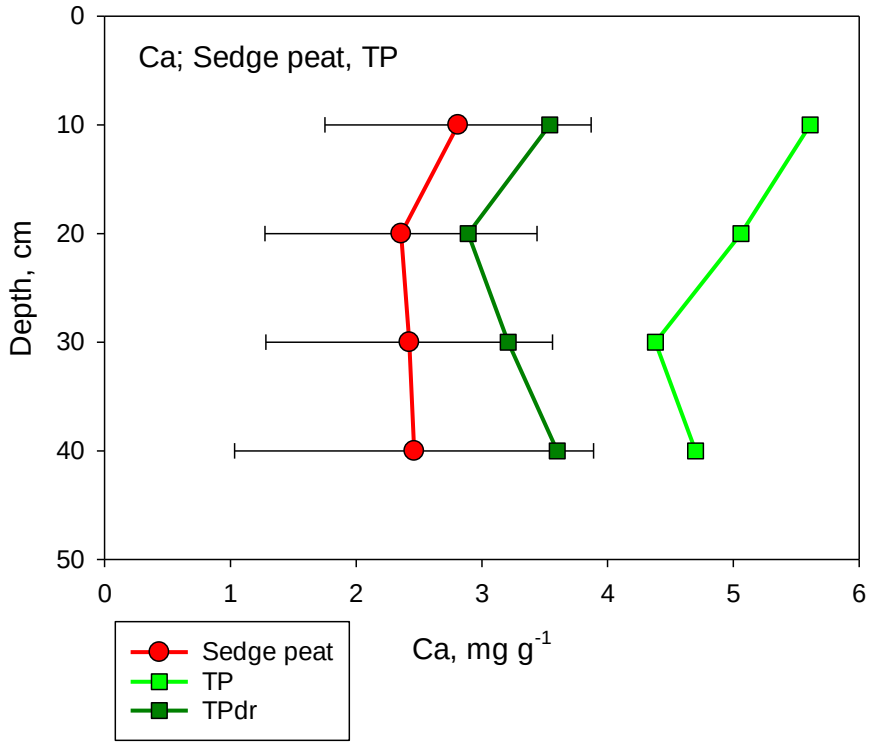


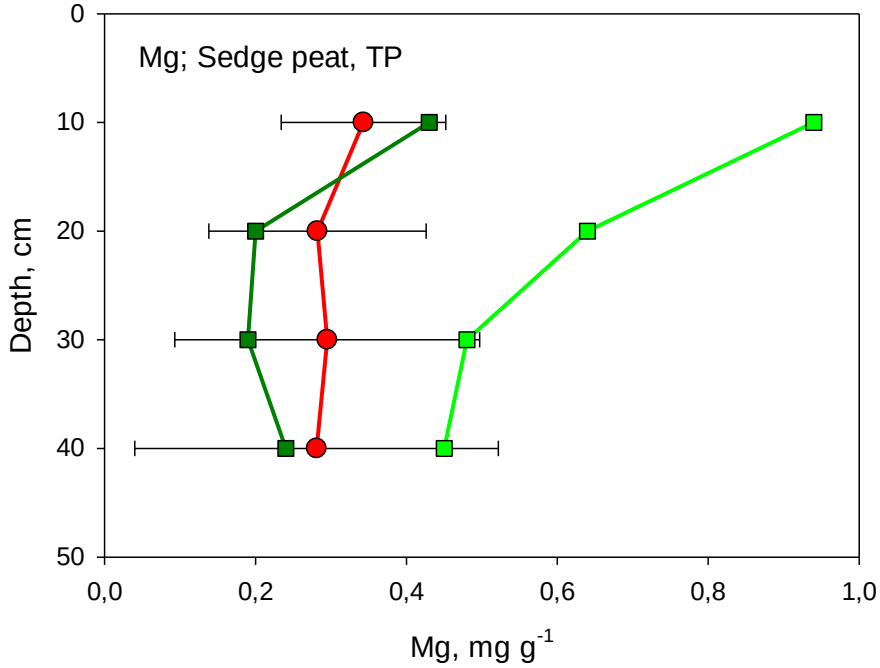

P; Sedge peat, TP
Depth, cm
0
10
20
30
40
50
0,4
0,5
0,6
0,7
0,8
0,9
1,0
1,1
P, mg g-1
Sedge peat
TP
TPdr
K; Sedge peat, TP
Depth, cm
0,0
0,2
0,4
0,6
0,8
1,0
K, mg g-1

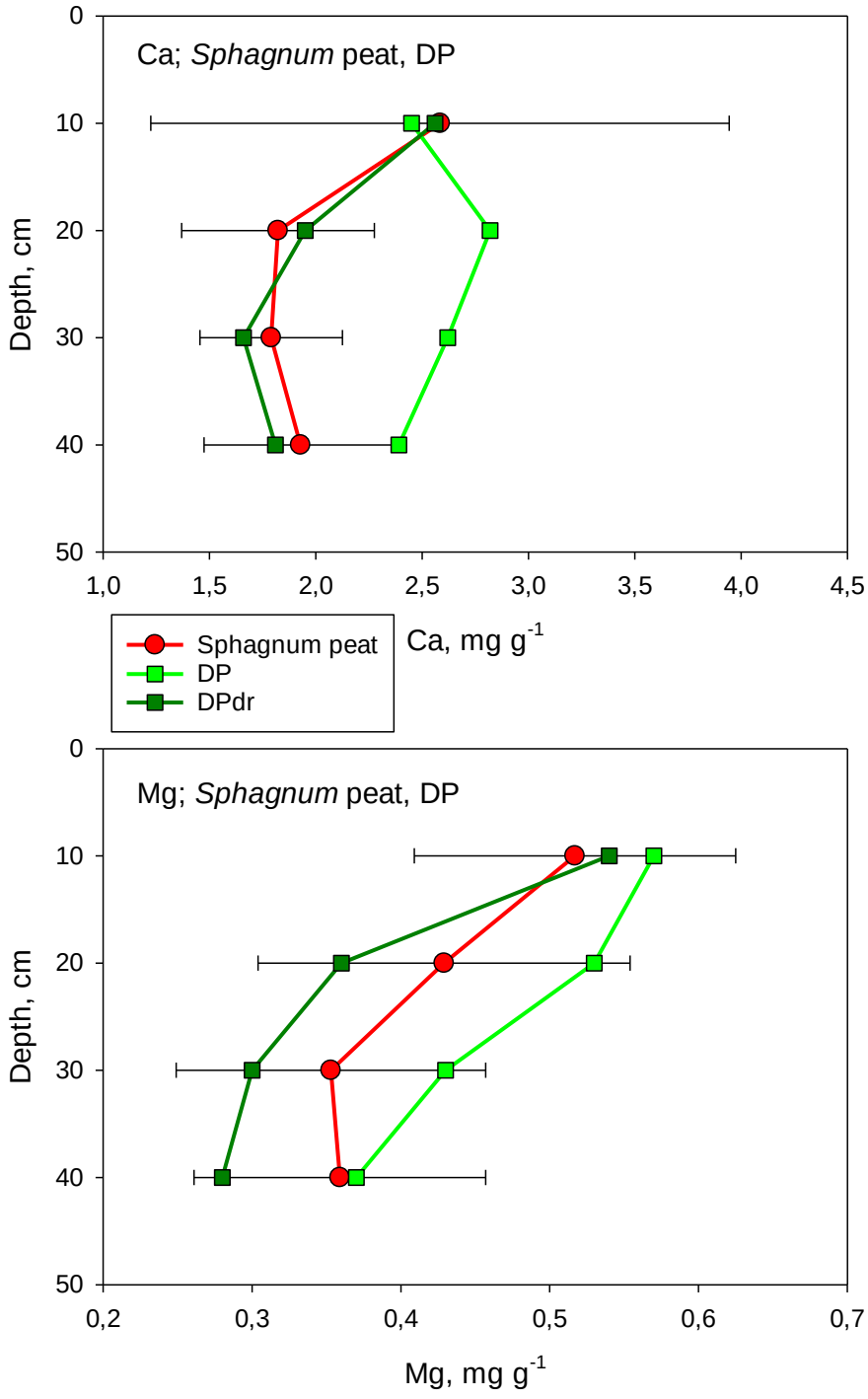

P; *Sphagnum* peat, DP
Depth, cm
0
10
20
30
40
50
0,2
0,3
0,4
0,5
0,6
0,7
Sphagnum peat
DP
DPdr
P, mg g-1


K; *Sphagnum* peat, DP
Depth, cm
0
10
20
30
40
50
0,0
0,2
0,4
0,6
0,8
1,0
1,2
K, mg g-1


Ca; Swamp peat, VS & HS
Depth, cm
0
10
20
30
40
50
0
2
4
6
8
10
12
Ca, mg g-1
Swamp peat
VS
VSdr
HS
HSdr
Mg; Swamp peat, VS & HS
Depth, cm
0,2
0,4
0,6
0,8
1,0
1,2
Mg, mg g-1


Ca; Sedge peat, TP
Depth, cm
0
10
20
30
40
50
0
1
2
3
4
5
6
Ca, mg g-1
Sedge peat
TP
TPdr


Mg; Sedge peat, TP
Depth, cm
0
10
20
30
40
50
0,0
0,2
0,4
0,6
0,8
1,0
Mg, mg g-1


Ca; *Sphagnum* peat, DP
Depth, cm
0
10
20
30
40
50
1,0
1,5
2,0
2,5
3,0
3,5
4,0
4,5
Ca, mg g-1
Sphagnum peat
DP
DPdr
Mg; *Sphagnum* peat, DP
Depth, cm
0,2
0,3
0,4
0,5
0,6
0,7
Mg, mg g-1