Supplementary Material

Influence of root diameter and soil depth on the xylem anatomy of fine- to medium-sized roots of mature beech trees in the top- and subsoil

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Table S1: Root classification according to diameter after Sutton and Tinus (1983) and number of observations (n) per root class and soil depth (cm) across the three excavated soil pits.

Root diameter	Classification	Soil depth (cm)						
		0 - 20	20 - 40	40- 60	60 - 80	80 - 120	120 - 160	160 - 200
Ø 1-5 mm	fine and small roots	16	15	15	19	18	18	19
Ø 5-10 mm	medium roots	14	11	13	7	10	11	11
Ø 1-2 mm		2	4	0	4	4	5	1
Ø 2-3 mm		7	3	9	6	9	6	7
Ø 3-4 mm		3	3	4	7	3	4	7
Ø 4-5 mm		4	5	2	2	4	3	4
Ø 5-6 mm		4	1	5	5	4	4	2
Ø 6-7 mm		1	5	4	0	2	1	3
Ø 7-8 mm		4	4	0	1	1	0	3
Ø 8-9 mm		5	1	2	0	0	3	1
Ø 9-10 mm		0	0	2	1	1	3	2

Table S2: Physical and chemical soil characteristics at different soil depths in the Grinderwald forest (June 2013). Classification of soil horizons according to FAO - WRB 2014.

Soil depth (cm)	Soil horizon	pH ($CaCl_2$)	SOC (g kg^{-1})	Sand (%)	Silt (%)	Clay (%)
0-2	AE	3.3	27.0	70.0	26.0	4.0
2-12	Bsw	3.4	17.0	65.0	30.0	5.0
12-36	Bw	4.4	7.0	67.0	29.0	4.0
36-65	BwC	4.5	3.0	73.0	24.0	3.0
65-125	C	4.4	0.4	95.0	4.0	1.0
125-150	2C	4.1	0.1	81.0	11.0	8.0
150-180	2Cg	4.2	0.8	72.0	19.0	9.0
180+	3C	4.2	<0.1	95.0	4.0	1.0

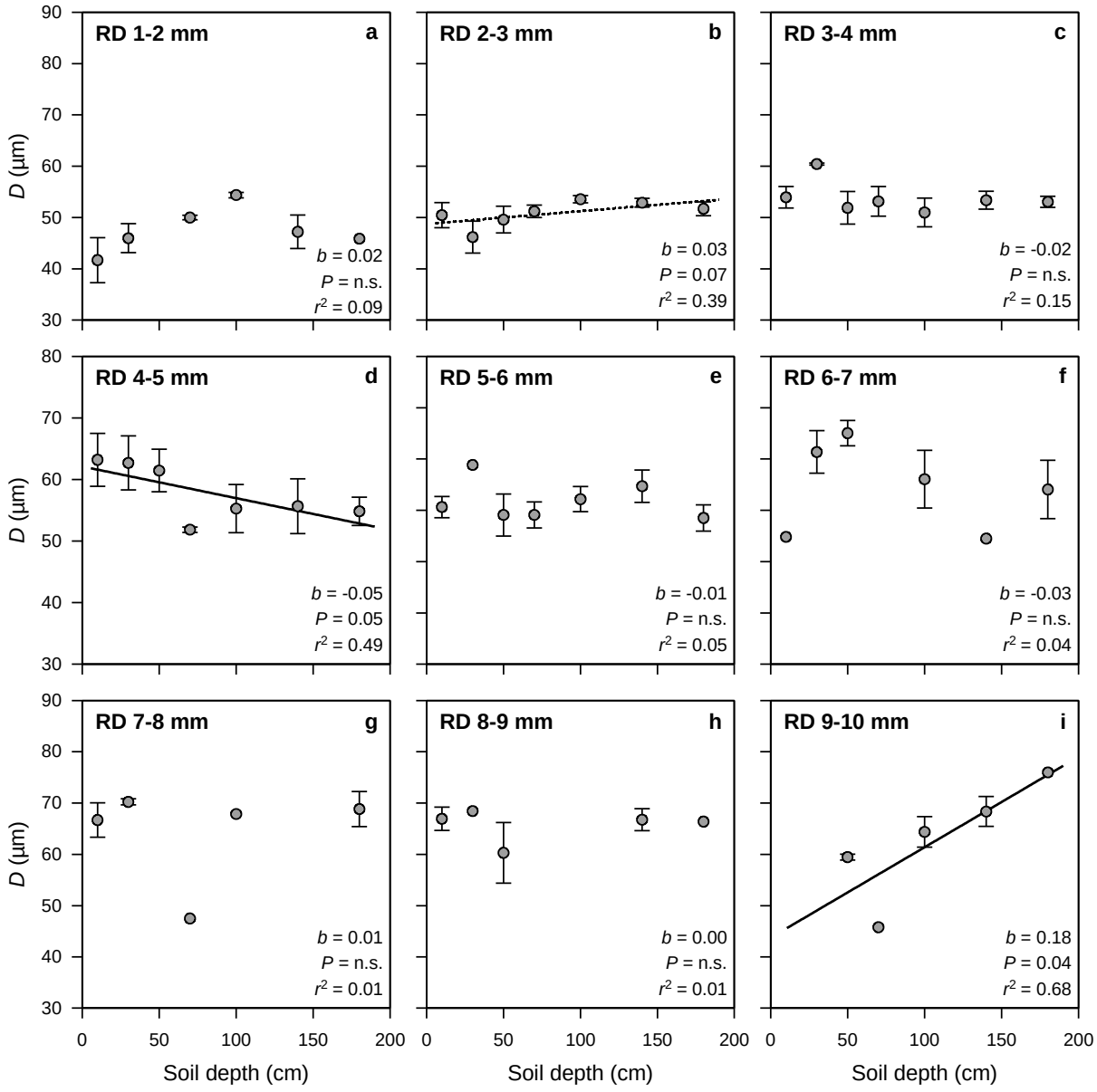

Figure S1: Influence of soil depth on mean vessel diameter (*D*) for nine different root diameter classes (RD). For each root diameter class, 9-44 samples were available, which subsequently were averaged for each soil depth class. For number of replicates per root diameter class see Table S1. Values are means ± SE; the slope (*b*), coefficient of determination (r^2) and probability of error (*P*-value) of the linear regressions are given.

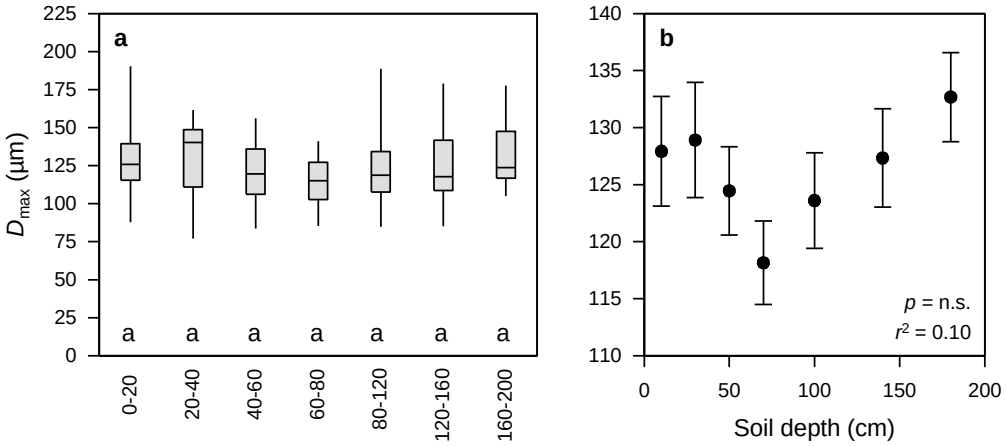

Figure S2: Box-whisker plots (with median, 25 and 75% quantiles and extreme values) for the variation in maximum vessel diameter (D_{max}) in seven soil depth classes (a); small letters indicate significant differences between depth classes. Additionally given is the relation between soil depth and mean values ± SE for D_{max} (b). Please not the different scaling of the y-axis.