Small-Scale Forest Structure Influences Spatial Variability of Belowground Carbon Fluxes in a Mature Mediterranean Beech Forest

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Table S1. Forest structural parameters, soil parameters, and FRP in the 9 sampling plots (SP). Basal area (m^2) is the sum of the stem cross section areas of the n trees present in each plot; D_{max} (cm) is the maximum diameter measured in the sampling plot tree height; LAI ($m^2 m^2$); T soil (°C) is the average soil temperature measured during the SR campaigns (n = 11); SWC (%) is the annual average soil water content measured during the SR campaigns except February 2008 because of the snow cover (n = 10); SMN (%) is the organic nitrogen percentage in the mineral soil layer; SMC (%) is the organic carbon percentage in the mineral soil layer; SON (%) is the organic soil layer; SOC (%) is the organic carbon percentage in the organic soil layer; Litter amount (g DW m⁻²); Litter N (%) and Litter C (%) are the nitrogen and carbon percentage of litter, respectively; FRPy, FRPG, and FRPLP (Mg Dw ha⁻¹) are fine root production estimated at annual scale, during the vegetative season, and during leafless period, respectively; SRy, SRG, and SRLP are the mean of the soil CO₂ effluxes measured during the whole study period, during the vegetative period, and during the leafless period, respectively.

Forest structure									
parameter	SP_1	SP_2	SP_3	SP_4	SP_5	SP_6	SP_7	SP_8	SP_9
N tree plot ⁻¹	6	17	18	15	5	9	15	24	17
Basal area (m ²)	0.35	0.37	0.37	0.31	0.24	0.31	0.21	0.28	0.24
$D_{max}(cm)$	33.60	30.00	46.90	34.70	40.00	31.30	23.40	27.10	20.90
LAI (m ² m ⁻²)	5.89	6.78	7.13	5.92	6.01	5.45	5.55	6.44	5.33
Soil parameters									
T soil (°C)	8.95	9.12	9.40	9.22	8.85	8.62	8.60	8.63	8.98
SWC (%)	34.56	27.25	26.18	28.79	26.31	20.39	14.74	18.08	16.22
SMN (%)	0.69	0.60	0.65	0.45	0.65	1.32	1.00	1.20	0.84
SMC (%)	9.28	8.04	8.52	7.35	7.46	17.16	13.03	14.66	9.75
SOC (%)	1.46	1.50	1.64	1.21	1.14	1.92	1.32	1.63	1.35
SON (%)	21.62	23.32	24.44	17.33	16.14	28.05	18.16	22.44	19.20
Litter amount (g m-									
²)	256.98	213.64	191.23	256.80	224.80	241.49	265.48	216.43	222.50
Litter N (%)	1.76	1.97	1.86	1.81	1.84	1.75	1.96	2.03	1.82
Litter C (%)	36.14	41.49	37.37	39.02	38.58	37.90	40.57	39.95	39.33
FRP									
FRPy	11.93	11.87	13.50	10.56	9.67	7.62	8.50	10.01	7.32
FRPG	9.31	10.23	10.93	8.70	7.94	5.47	7.31	8.82	6.54
FRPLP	2.62	1.64	2.57	1.86	1.73	2.15	1.18	1.19	0.78
SR									

SRy ($molCO_2m_2s^{-1}$)	1.52	1.63	1.83	1.68	1.37	1.40	1.46	1.44	1.04
SRG (molCO ₂ m ₂ s ⁻¹)	1.75	1.89	2.02	2.01	1.70	1.67	1.67	1.85	1.25
SRLP ($molCO_2m_2s^{-1}$)	1.12	1.18	1.50	1.10	0.79	0.93	1.09	0.72	0.68



Figure S1: relationship between the basal area, representing the sum of the area (m²) of the cross-section of stems measured at 1.30 m height, and Leaf Area Index (LAI) measured at the centre of each sampling plot.



Figure S2. Relationship between annual fine root production (FRP_Y) and leaf area index (LAI).

Each point is a sampling plot.