

Supplementary Materials

Table S1. Plant factors in sample plots.

Plot	Age	TH	DBH	TC	CBH	HN	HH	HGD	R	SW	J
1	9	4.77±0.06	6.16±0.14	0.56±0.03	1.53±0.18	46.86±0.61	1.92±0.08	0.46±0.04	3.27±0.63	0.49±0.13	0.28±0.35
2	9	4.68±0.04	6.1±0.02	0.55±0.01	1.39±0.05	44.84±0.11	1.94±0.08	0.45±0.04	3.67±0.58	0.55±0.05	0.29±0.51
3	9	4.75±0.05	6.20±0.07	0.55±0.02	1.53±0.09	45.81±1.01	1.92±0.11	0.46±0.02	4.67±1.53	0.47±0.03	0.28±0.47
4	14	6.72±0.33	7.28±0.17	0.61±0.03	2.41±0.21	48.98±1.03	2.03±0.04	0.48±0.02	5.33±0.58	1.01±0.08	0.36±0.85
5	14	6.56±0.41	7.46±0.22	0.62±0.01	2.36±0.09	47.06±0.99	2.06±0.10	0.49±0.17	6.67±0.41	1.07±0.06	0.36±0.39
6	14	6.50±0.07	7.51±0.23	0.65±0.02	2.30±0.11	47.09±1.73	2.03±0.01	0.48±0.06	7.33±0.30	1.03±0.09	0.35±0.22
7	20	8.69±0.2	9.29±0.12	0.75±0.04	2.88±0.14	58.60±2.14	2.11±0.07	0.54±0.01	8.42±0.81	1.54±0.19	0.49±0.16
8	20	8.68±0.26	9.56±0.13	0.74±0.02	3.23±0.06	58.11±1.25	2.05±0.05	0.54±0.03	8.06±0.15	1.53±0.03	0.50±0.01
9	20	8.69±0.06	9.43±0.18	0.76±0.03	3.68±0.07	57.44±1.21	2.03±0.04	0.53±0.05	8.35±0.57	1.44±0.10	0.51±0.91
10	32	11.19±0.03	12.5±0.12	0.66±0.01	6.38±0.14	61.91±3.11	1.92±0.06	0.69±0.02	10.3±0.63	1.55±0.12	0.35±0.74
11	32	11.21±0.13	12.56±0.04	0.63±0.02	6.36±0.02	63.28±2.07	2.11±0.26	0.68±0.11	10.51±0.12	1.53±0.04	0.44±0.33
12	32	11.24±0.04	12.64±0.47	0.63±0.05	6.29±0.10	64.47±0.64	2.18±0.19	0.67±0.07	9.67±0.46	1.60±0.07	0.45±0.99
13	41	13.86±0.06	12.47±0.29	0.59±0.14	7.72±0.08	70.55±0.97	2.32±0.06	0.77±0.05	11.67±0.79	1.63±0.10	0.39±0.62
14	41	13.79±0.08	12.25±0.42	0.57±0.08	7.71±0.13	70.04±0.59	2.38±0.26	0.77±0.01	12.04±0.17	1.70±0.07	0.38±0.25
15	41	13.71±0.02	12.57±0.05	0.56±0.06	7.68±0.11	69.93±0.44	2.30±0.12	0.76±0.06	12.17±0.72	1.63±0.09	0.40±0.48

TH, tree height; DBH, tree diameter at breast height (cm); TC, tree canopy; CBH, tree crown base height (m); HH, herb height (m); HGD, herb ground diameter (cm); HC, height coverage; R, herb richness; SW, Shannon–Wiener diversity index; J, Pielou's diversity index.

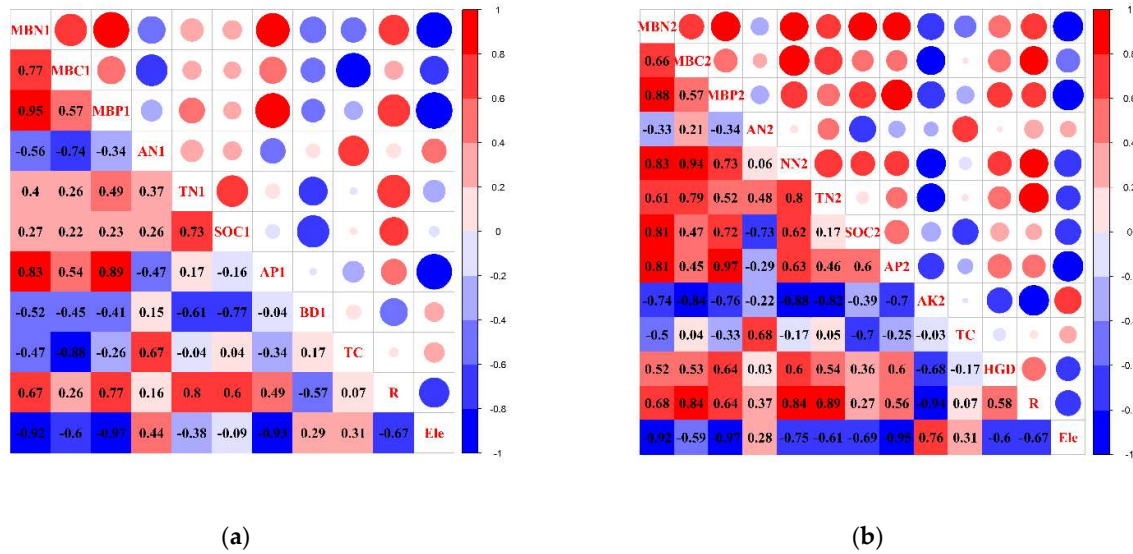


Figure S1. Semi-matrices of Pearson correlation coefficients between microbial biomass and biotic and abiotic factors in 0–10cm (a) and 10–30 cm (b). Legend, 0 represents no correlation, 1 represents the greatest correlation, and -1 represents the smallest correlation. MBN1, MBC1, MBP1, microbial biomass N,C,P in 0–10cm; MBN2, MBP2, microbial biomass N,C,P in 10–30cm; TC, tree canopy; R, herb richness; Ele, elevation; AP1, available phosphorus in 0–10cm; BD1, bulk density in 0–10cm; AN1, available nitrogen in 0–10cm; TN1, total nitrogen in 0–10cm; SOC1, soil organic carbon in 0–10cm; AN2, available nitrogen in 10–30cm; NN2, nitrate content in 10–30cm; TN2, total nitrogen in 10–30cm; SOC2, soil organic carbon in 10–30cm; AP2, available phosphorus in 10–30cm; AK2, available potassium in 10–30cm.

Table S2. Soil physiochemical factors and microbial biomass in sample plots in different depths.

Plots	Layers	MBN	MBC	MBP	AN	NN	TN	SOC	AP	BD	PH	TP	AK	SWC
1	0–10	127.43±0.6	273.25±0.56	5.96±0.48	1.49±0.06	1.87±0.05	0.35±0.79	5.17±0.91	5.45±0.51	1.03±0.93	8.71±0.59	0.33±0.83	19.71±1.57	0.13±1.06
	10–30	68.35±0.29	80.78±0.38	2.83±0.19	0.76±0.3	1.56±0.21	0.24±0.95	3.43±0.38	5.12±0.98	1.26±0.26	8.83±0.46	0.40±0.76	19.70±0.3	0.13±0.67
2	0–10	125.71±0.49	289.41±0.71	5.40±0.33	1.47±0.09	1.55±0.48	0.38±0.41	5.33±0.86	5.45±0.7	1.04±0.71	8.71±0.62	0.32±0.48	20.65±0.89	0.13±0.74
	10–30	55.74±1.12	71.64±0.22	2.67±0.02	0.73±0.67	1.55±0.49	0.25±0.93	3.58±0.36	5.23±0.88	1.29±0.92	8.84±0.88	0.42±0.41	20.37±0.48	0.12±0.65
3	0–10	115.94±0.39	274.75±0.55	5.44±0.22	1.43±0.03	1.75±0.39	0.34±0.2	5.12±0.92	5.37±0.49	1.06±0.4	8.70±1.08	0.34±0.55	19.23±0.73	0.13±0.59
	10–30	64.29±0.51	97.33±0.61	4.01±1.28	0.72±1.16	1.54±1.05	0.24±0.8	3.50±0.39	5.19±0.56	1.25±0.85	8.84±0.32	0.40±0.27	19.82±0.31	0.12±0.91
4	0–10	69.07±0.61	202.64±0.5	8.00±0.66	2.76±0.04	2.19±0.67	0.41±1.02	3.45±0.51	8.71±0.57	1.11±0.74	8.61±0.37	0.45±0.94	20.23±0.22	0.14±1.81
	10–30	43.70±1.28	43.57±0.27	4.87±0.13	1.79±0.95	1.74±0.59	0.28±1.08	1.19±0.32	7.35±1.01	1.09±0.4	8.67±0.78	0.51±0.76	19.58±0.53	0.12±0.43
5	0–10	70.44±0.43	195.28±0.82	7.16±0.34	2.71±0.02	2.08±0.31	0.37±0.5	3.91±0.96	8.61±0.43	1.12±0.93	8.61±1.47	0.46±0.9	20.19±0.45	0.14±0.35
	10–30	43.61±0.51	46.28±0.74	4.56±0.24	1.57±0.53	1.87±0.96	0.29±0.73	1.17±0.62	7.37±0.82	1.17±1.04	8.67±0.91	0.48±0.56	19.45±1.07	0.12±1.17
6	0–10	74.16±0.48	191.28±0.57	7.51±0.16	2.67±0.01	2.04±0.52	0.40±0.71	3.81±0.28	8.90±0.94	1.12±0.71	8.59±0.39	0.45±0.51	20.14±0.82	0.14±0.28
	10–30	49.00±0.4	50.08±0.7	4.79±0.68	1.70±0.94	1.77±0.39	0.28±1.07	1.18±1.05	7.33±0.27	1.15±0.56	8.66±0.46	0.48±1.12	19.52±0.33	0.12±0.42
7	0–10	82.62±0.36	146.18±0.96	8.02±0.36	3.00±0.03	4.12±0.74	0.43±0.28	4.42±0.19	5.91±0.35	1.09±1.07	8.70±0.92	0.45±0.55	21.90±0.97	0.15±0.76
	10–30	40.32±0.33	118.59±1.29	4.45±0.3	1.94±0.32	2.02±0.54	0.34±0.71	1.51±0.66	6.43±0.12	1.11±0.79	8.75±0.57	0.55±0.68	18.55±1.33	0.11±0.91
8	0–10	93.71±0.3	141.86±0.58	7.38±0.28	2.99±0.03	4.41±0.82	0.45±0.99	6.45±0.27	5.95±1.08	1.06±0.21	8.70±1.14	0.47±0.97	21.77±0.62	0.14±0.38
	10–30	36.80±0.6	115.48±1.12	4.84±0.65	1.92±0.58	2.05±0.5	0.34±0.44	1.51±0.84	6.45±0.67	1.11±0.3	8.77±0.35	0.55±0.72	18.65±0.91	0.12±0.51
9	0–10	84.10±0.79	149.47±0.4	8.59±0.31	3.04±0.03	4.34±0.11	0.49±0.92	4.57±0.526	5.89±0.74	1.06±0.25	8.68±0.54	0.44±0.95	21.25±0.54	0.15±0.74
	10–30	42.62±0.53	119.80±0.34	5.19±0.75	1.95±0.95	1.98±0.28	0.33±0.7	1.50±0.51	6.47±0.93	1.08±0.68	8.74±0.97	0.54±0.78	18.68±0.83	0.12±0.83
10	0–10	126.91±0.62	232.32±0.36	11.32±0.34	3.35±0.24	8.41±0.36	0.84±1.03	7.51±0.98	5.77±0.81	0.98±1.09	8.66±0.31	0.54±1.07	17.90±0.69	0.15±0.25
	10–30	69.47±0.64	140.08±0.27	3.69±0.51	2.40±1.04	3.31±0.87	0.45±0.71	1.73±0.7	5.70±0.56	1.18±0.67	8.76±0.28	0.57±0.78	17.26±0.41	0.13±1.19
11	0–10	128.63±0.29	227.22±0.71	12.49±0.51	3.90±0.21	8.54±0.09	0.83±0.66	7.39±0.88	5.71±0.31	0.98±0.91	8.66±0.96	0.55±0.26	16.58±1.14	0.16±0.94
	10–30	73.74±0.55	138.28±0.16	3.99±0.22	2.40±0.73	3.47±0.89	0.46±0.35	1.73±0.56	5.60±0.36	1.20±0.62	8.75±1.96	0.57±0.54	17.23±0.57	0.13±0.22
12	0–10	127.97±0.22	221.30±1.22	12.24±0.44	3.06±0.48	8.22±0.2	0.84±1.05	7.21±0.47	5.68±0.63	0.98±0.88	8.65±0.59	0.56±0.21	16.90±0.28	0.16±1.07
	10–30	70.18±0.32	132.74±1.18	4.08±0.69	2.45±0.64	3.33±0.21	0.44±0.88	1.73±1.01	5.77±0.46	1.19±0.56	8.74±0.33	0.56±0.58	17.00±1.59	0.13±0.39
13	0–10	294.19±0.33	303.19±0.26	29.03±0.3	1.65±0.41	6.86±0.17	0.66±0.66	5.57±0.73	14.45±1.03	1.04±1.29	7.82±0.27	0.37±0.66	16.07±0.25	0.13±0.17
	10–30	128.45±0.09	153.92±0.51	23.80±0.24	1.10±0.09	4.35±0.93	0.45±0.78	4.42±0.58	12.66±0.81	1.23±0.98	8.04±1.08	0.47±0.42	15.92±0.96	0.09±0.82
14	0–10	285.05±0.7	302.56±1.04	29.82±0.84	1.43±0.17	6.48±0.63	0.64±1.25	5.84±0.94	14.33±0.27	1.05±1.04	7.80±0.47	0.35±0.86	15.95±0.27	0.12±0.46

Table S2. *Cont.*

Plots	Layers	MBN	MBC	MBP	AN	NN	TN	SOC	AP	BD	PH	TP	AK	SWC
15	10–30	136.34±0.38	142.48±0.11	20.46±0.7	1.14±0.31	4.61±0.8	0.45±0.63	4.42±0.31	12.63±0.3	1.23±0.47	8.05±0.86	0.47±0.29	16.33±0.48	0.09±0.51
	0–10	307.63±0.85	310.20±0.57	28.34±0.63	1.48±0.45	6.20±1.08	0.64±0.72	5.11±1.08	14.43±0.77	1.03±0.76	7.80±0.59	0.36±0.35	15.91±0.35	0.13±1.05
	10–30	114.17±0.62	165.35±0.54	22.05±0.39	1.11±0.22	4.60±0.94	0.43±0.95	4.40±0.52	12.52±0.81	1.22±0.72	8.06±0.63	0.47±0.91	16.04±0.53	0.10±0.24

Layers soil depths (cm); MBC, soil microbial biomass carbon (mg kg⁻¹); MBN, soil microbial biomass nitrogen (mg kg⁻¹); MBP, soil microbial biomass phosphorus (mg kg⁻¹); AN, available nitrogen (mg kg⁻¹); NN, nitrate nitrogen (mg kg⁻¹); TN, total nitrogen (g kg⁻¹); SOC soil organic carbon (g kg⁻¹); AP available phosphorus (mg kg⁻¹); BD bulk density (g cm⁻³); TP total phosphorus (g kg⁻¹); TK total potassium (g kg⁻¹); AK available potassium (mg kg⁻¹); SWC soil water content