

## Supplementary Materials

The south-facing slope had the highest total plant abundance of combined trees, shrubs and herbs, which was significant different from that on either the north-facing slope or the flat site; but separated by woody plants and herbs; the same difference was found only for the herbs, while the highest abundance of trees and shrubs on the north-facing slope being significantly different from the lowest on the south-facing slope (Table 2). There was significant difference of plant litter across the three sampled sites with the highest on the north-facing slope and the lowest on the flat site (Table S1).

**Table S1.** Attributes of plant community in the three sampled sites.

Plant community attribute	North-facing slope	Flat site	South-facing slope
Abundance of trees and shrubs	213.07±10.24b	200.41±8.42ab	176.17±8.61a
Abundance of herbs	1809.38±63.52a	1909.88±104.93a	3283.72±137.91b
Total plant abundance	2022.45±65.96a	2110.28±104.08a	3459.89±141.20b
Total basal area (m <sup>2</sup> ha <sup>-1</sup> )	144.22±8.34a	174.30±6.42b	169.48±10.95ab
Richness of trees and shrubs	16.29±0.37b	16.14±0.32b	14.96±0.40a
Richness of herbs	30.67±1.10a	36.20±1.90b	56.32±2.16c
Total plant richness	47.14±1.21a	51.84±1.90b	71.28±2.31c
Litter standing crop (g)	39.27±2.61c	27.94±0.83a	32.26±1.30b
Total stand density of trees (ha <sup>-1</sup> )	102.45±26.11b	109.46±40.22b	86.21±26.93a

**Table S2**

Pearson's rank correlation coefficients (R) between soil microbial (bacterial and fungal) composition and the environmental variables.

Aspect		SOM	PH	SWC	TP	TN	AP	AN	BC	BR	FC
North-facing slope	BC	-0.01	<b>0.51***</b>	-0.25	<b>-0.46**</b>	-0.1	-0.23	0.07			
	BR	-0.25	0.16	-0.09	-0.14	-0.11	<b>-0.44**</b>	0.26	0.18		
	FC	0.1	0.12	0.03	-0.09	0.11	-0.05	0.05	0.15	<b>0.37*</b>	
	FR	-0.09	0.26	0.06	-0.11	0.10	-0.15	0.26	0.31	<b>0.47**</b>	<b>0.34*</b>
Flat site	BC	<b>-0.51***</b>	<b>0.25*</b>	<b>-0.24*</b>	<b>-0.35***</b>	<b>-0.57***</b>	<b>-0.62***</b>	<b>-0.40***</b>			
	BR	-0.01	-0.04	<b>0.23*</b>	-0.06	-0.15	-0.21	0.16	-0.04		
	FC	<b>-0.23*</b>	<b>0.30**</b>	-0.13	-0.19	<b>-0.28*</b>	<b>-0.24*</b>	<b>-0.25*</b>	<b>0.22*</b>	0.01	
	FR	0.08	-0.12	<b>0.31**</b>	0.08	0.05	0	0.21	<b>-0.30**</b>	<b>0.48***</b>	-0.11
South-facing slope	BC	<b>-0.40**</b>	<b>0.58***</b>	-0.26	-0.09	-0.19	<b>-0.52***</b>	-0.1			
	BR	-0.03	0.16	0.11	0.06	0.11	<b>-0.38**</b>	<b>0.32*</b>	0.2		
	FC	0.05	0.26	0.09	0.27	0.19	-0.09	0.19	<b>0.31*</b>	<b>0.41**</b>	
	FR	0.05	0.18	0.09	-0.19	0.23	-0.25	0.23	-0.05	<b>0.52***</b>	0.06

Soil organic material (SOM), soil moisture content (SMC), total phosphorus (TP), total nitrogen (TN), available phosphorus(AP), available nitrogen(AT), bacteria community(BC),bacteria richness(BR),fungal community(FC),fungal richness(FR). \*\*\*. Correlation is significant at the 0.001 level \*\*. Correlation is significant at the 0.01 level \*.Correlation is significant at the 0.05 level

**Table S3.**

**Pearson's rank correlation coefficients (R) between plant community attributes and the environmental variables.**

Aspect		SOM	PH	SWC	TP	TN	AP	AN
North-facing Slope	TPR	-0.18	<b>0.14*</b>	-0.05	-0.23	-0.04	-0.10	0.12
	TPB	<b>0.32*</b>	0.16	0.24	0.21	<b>0.45**</b>	0.14	0.12
Flat	TPR	-0.01	-0.03	-0.04	0.19	0.03	0.01	-0.01
	TPB	<b>0.49***</b>	<b>-0.25*</b>	<b>0.23*</b>	<b>0.48***</b>	<b>0.47***</b>	<b>0.44***</b>	<b>0.39***</b>
South-facing Slope	TPR	0.25	<b>-0.44*</b>	0.34	-0.35	0.04	0.25	0.11
	TPB	-0.09	<b>0.43**</b>	<b>-0.53***</b>	0.22	-0.03	-0.16	0.02

Total Plant Biomass (TPB), Total Plant Richness (TPR). \*\*. Correlation is significant at the 0.01 level ;\*.Correlation is significant at the 0.05 level

**Figure S1.**

Relative abundances (average values and standard error) of soil bacteria (A) and soil fungi (B) at phylum level in the three sampled sites (north-facing slope, flat site and south-facing slope). Different letters indicate significant differences (ANOVA,  $P < 0.05$ , Tukey's HSD post-hoc analysis) among the three site groups.

