

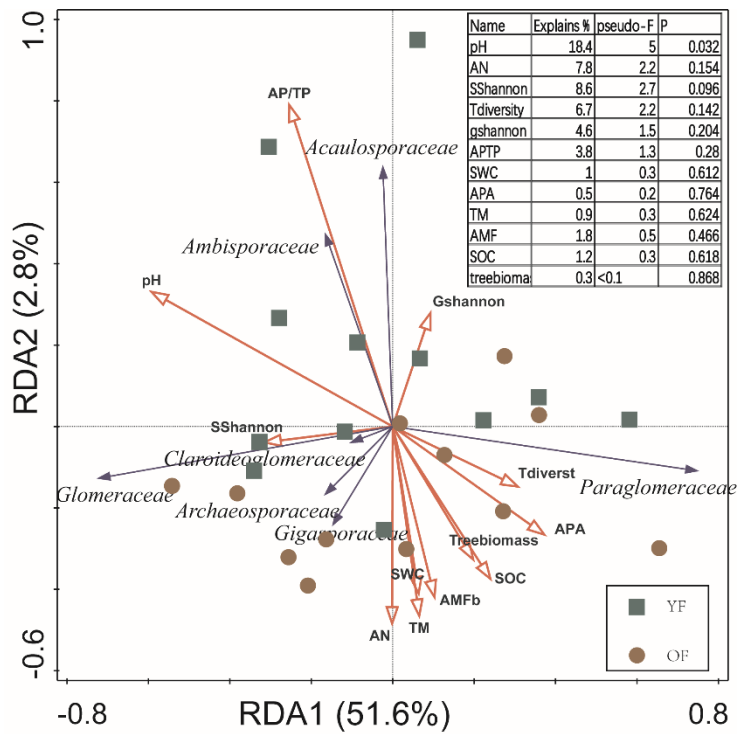
Appendix A Characteristics of tropical forests and soils (0-10 cm) in the young (YF) and the old forest (OF). Data were shown as mean±SD (n=12). * or ** indicates that the two parameters differed significantly at $P < 0.05$ or $P < 0.01$ level. between the YF and OF.

	YF	OF	
Tree biomass (t 100m ⁻²)	1.09±0.16	7.79±1.40 **	All these are measured in 12 10×10 m plots
Tree diversity	2.86±0.44	3.52±0.83*	
Tree species	7±1	11±1*	
Tree numbers	21±3	45±6**	
Shrub diversity	1.91±0.22	1.85±0.37	
Grass diversity	1.68±0.40	1.62±0.35	
Soil water content (%)	18.3.7±2.2	29.1±2.4**	
Soil organic carbon (%)	1.91±0.32	3.77±1.16**	
nitric N (mg kg ⁻¹)	1.3±0.9	16.8±4.9	
Ammonium N (mg kg ⁻¹)	8.2±1.3	9.9±1.2	
pH	3.6±0.1	3.4±0.1*	
Total N (g kg ⁻¹)	1.3±0.2	2.74±0.4**	
Total P (g kg ⁻¹)	0.19±0.02	0.30±0.03**	
Available P (mg kg ⁻¹)	3.0±0.9	3.0±1.0	
Acid phosphatase (mol p-NP g ⁻¹ h ⁻¹)	803±351	1472±343**	
Microbial biomass (nmol g ⁻¹)	23.9±3.9	47.3±6.4**	
AMF biomass (nmol g ⁻¹)	0.33±0.11	1.21±0.3**	

Appendix B Pearson correlation coefficient of different environmental factors with AMF Shannon diversity, VT numbers, and different AMF families.

	AMF diversi ty	VT numbe rs	<i>Acaul</i> <i>ospor</i> <i>aceae</i>	<i>Ambispo</i> <i>raceae</i>	<i>Archaeos</i> <i>poraceae</i>	<i>Claroideogl</i> <i>omeraceae</i>	<i>Gigaspo</i> <i>raceae</i>	<i>Glomer</i> <i>aceae</i>	<i>Paraglom</i> <i>eraceae</i>
SWC	0.54**	0.15	-0.05	-0.44*	0.32	-0.02	0.27	0.01	0.09
SOC	0.39*	-0.02	-0.15	-0.33	0.54**	-0.06	0.08	-0.13	0.22
APA	0.27	-0.03	-0.1	-0.29	0.03	-0.03	0.30	-0.24	0.31
pH	0.08	0.16	0.15	0.35	-0.22	0.06	-0.12	0.39	-0.48*
TM	0.48*	0.16	-0.18	-0.37	0.4	0.04	0.28	0.01	0.1
AMFb	0.43*	0.19	-0.16	-0.35	0.47*	0.1	0.29	-0.02	0.12
AP/T	-0.31	-0.08	0.34	0.60**	-0.07	0.15	-0.38	0.08	-0.28
P									
treebi	0.47*	-0.06	-0.12	-0.28	0.01	0.04	0.15	-0.1	0.18
omass									
Tdiver	0.37*	0.02	-0.23	0.01	-0.06	0.19	-0.01	-0.21	0.24
sity									
AN	0.44*	0.28	-0.2	-0.37	0.50*	0.09	0.38	0.06	0.05
SShan	-0.18	-0.1	0.04	-0.01	-0.18	0.07	-0.13	0.24	-0.23
non									
gshan	-0.39*	-0.25	0.29	-0.01	0.05	0.13	0.04	-0.1	0.04
non									

Notes: Tdiversity, AMF trees diversity; Tree biomass, biomass of AMF trees; SOC, soil organic carbon; AP/TP, available P/total P; aN, available N; pH, pH value; SWC, soil water content; APA, acid phosphatase activity; TM, total biomass of microbes (total PLFAs); AMFb, AMF biomass (16:1ω5). * or ** indicates the correlation is significant at $P < 0.05$ or $P < 0.01$ level, respectively.



Appendix C Redundancy analysis (RDA) relating AMF diversity (family, violet arrows) and plant community related parameters, soil properties, microbial parameters (red arrows) in the YF (square) and the OF (circle). Tdiversity, AMF trees diversity; Tree biomass, biomass of AMF trees; SShannon, shrub diversity; Gshannon, grass diversity; AP/TP, available P/ total P; SWC, soil water content; APA, acid phosphatase; SOC, soil organic carbon; TM, total biomass of microbes; AMFB, biomass of AMF.