

Table S1. Characteristics of different thinning management sites in *L. principis-rupprechtii* plantations.

Thinning treatment	Sampling site basic conditions				
	Stand density (trees/ha)	Elevation (m)	Slope Gradients (°)	Mean height (m)	Mean DBH (cm)
Control	2095	2327±16	24	14.19±2.11	15.01±0.50
HDP	1785	2335±3	24	14.06±1.97	14.85±0.65
MDP	1376	2346±6	25	15.86±0.91	15.96±0.42
LDP	1060	2340±10	23	15.41±2.18	16.81±0.54

Values: mean ± standard error. Different small letters: the variation of soil indicators in 4 thinning treatments ($p < 0.05$).
 DBH: diameter at breast height; Control: control site; LDP: low density plantation; MDP: medium density plantation;
 HDP: high density plantation.

Table S2. PLFAs biomarkers selected to characterize microorganism community structure.

Microbial community types	PLFAs	Reference
Gram - positive bacteria (G ⁺)	i13:0, i14:0, a14:0, a15:0, i15:0, i16:0, a17:0, i17:0, i18:0	Fichtner et al. (2014), Kourtev et al. (2002)
Gram – negative bacteria (G ⁻)	10:0 2OH, 15:1 w4c, 15:1 w6c, 16:0 2OH, 16:1 w6c, 16:1 w7c, 16:1 w9c, cy17:0, 17:1 w8c, 18:1 w5c, 18:1 w7c, cy19:0	Bossio et al. (2006), Fichtner et al. (2014), Gavazov et al. (2017)
Bacteria	G ⁺ , G ⁻ , 14:0, 15:0, 17:0, 18:0	Bossio et al. (2006), Fichtner et al. (2014), Gavazov et al. (2017), Kourtev et al. (2002), Myers et al. (2001)
Fungi	16:1 w5c, 18:1 w9c, 18:2 w6c, 18:2 w9c	Kourtev et al. (2002), Zhang et al. (2014)
Actinomycete	10 Me 16:0, 10 Me 17:0, 10 Me 18:0	Brockett et al. (2012)

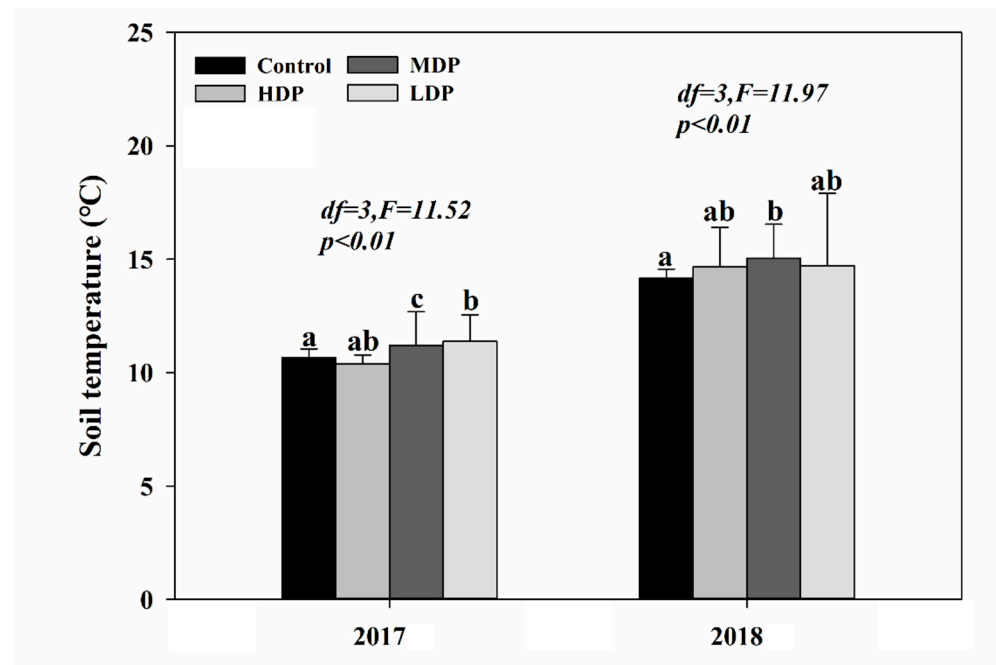


Figure S1. Effect of forest thinning on soil temperature in *L. principis-rupprechtii* plantations. Error bars indicate standard error (n = 3). Different lowercase letters: $p < 0.05$, significant difference between treatments. Control: control site; LDP: low density plantation; MDP: medium density plantation; HDP: high density plantation.