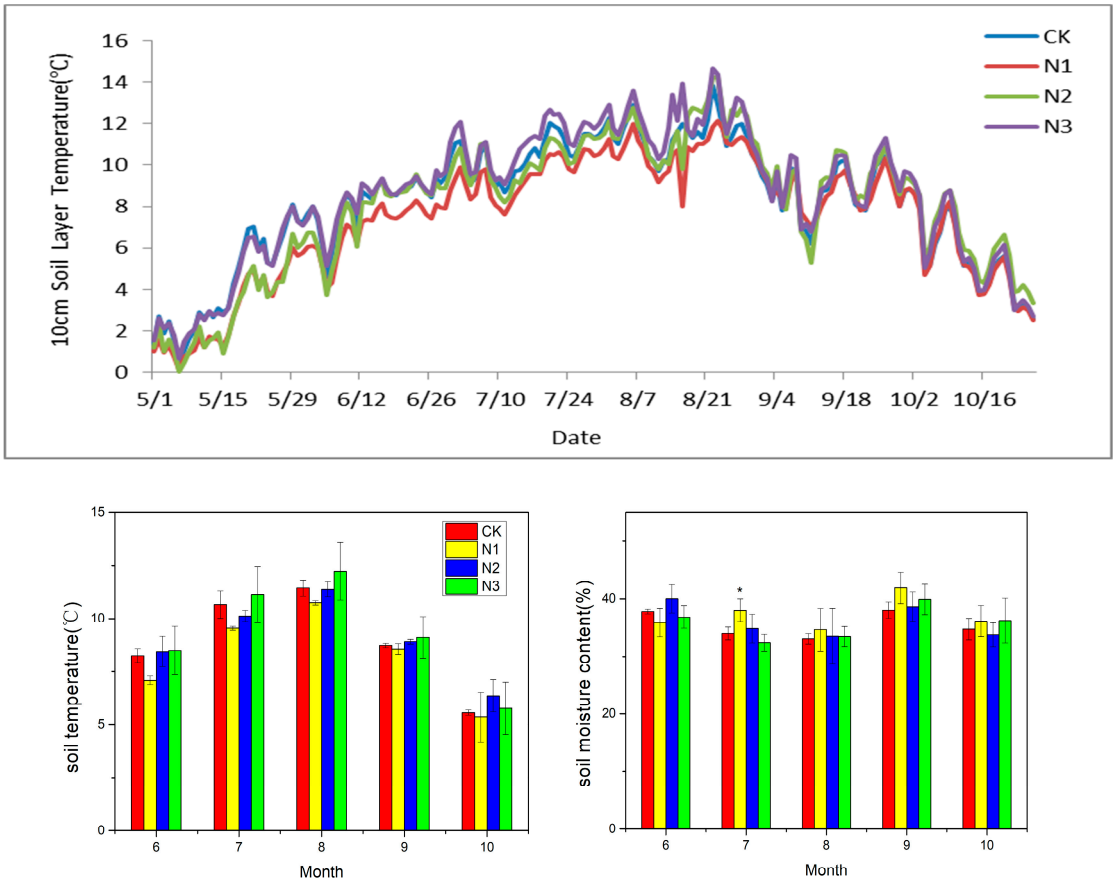


Figure S1. Dynamics of daily average temperature of 10cm soil in the subalpine coniferous forests of western Sichuan. CK： blank control；N1： low nitrogen；N2： medium nitrogen；N3： high nitrogen.

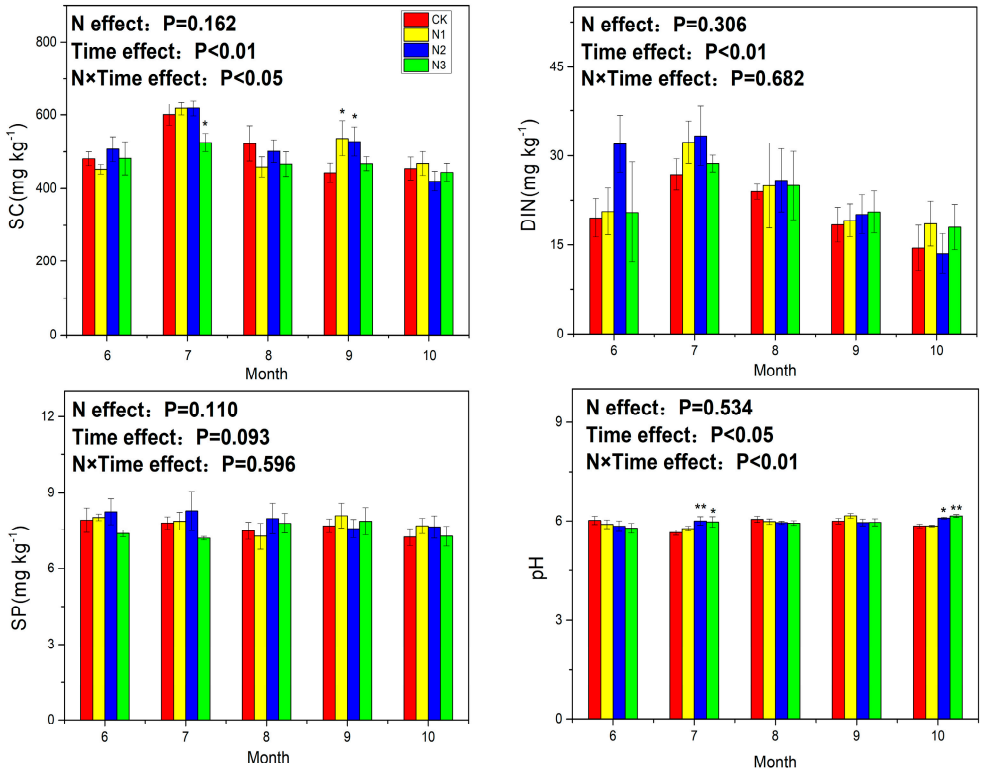


Figure S2 Response of soil soluble carbon, nitrogen and phosphorus, pH and moisture content to nitrogen application in the subalpine coniferous forest soils of western Sichuan.

* indicates significant difference between nitrogen treatment and control, ** indicates extremely significant difference between nitrogen treatment and control (One-way ANOVA, LSD multiple comparison)

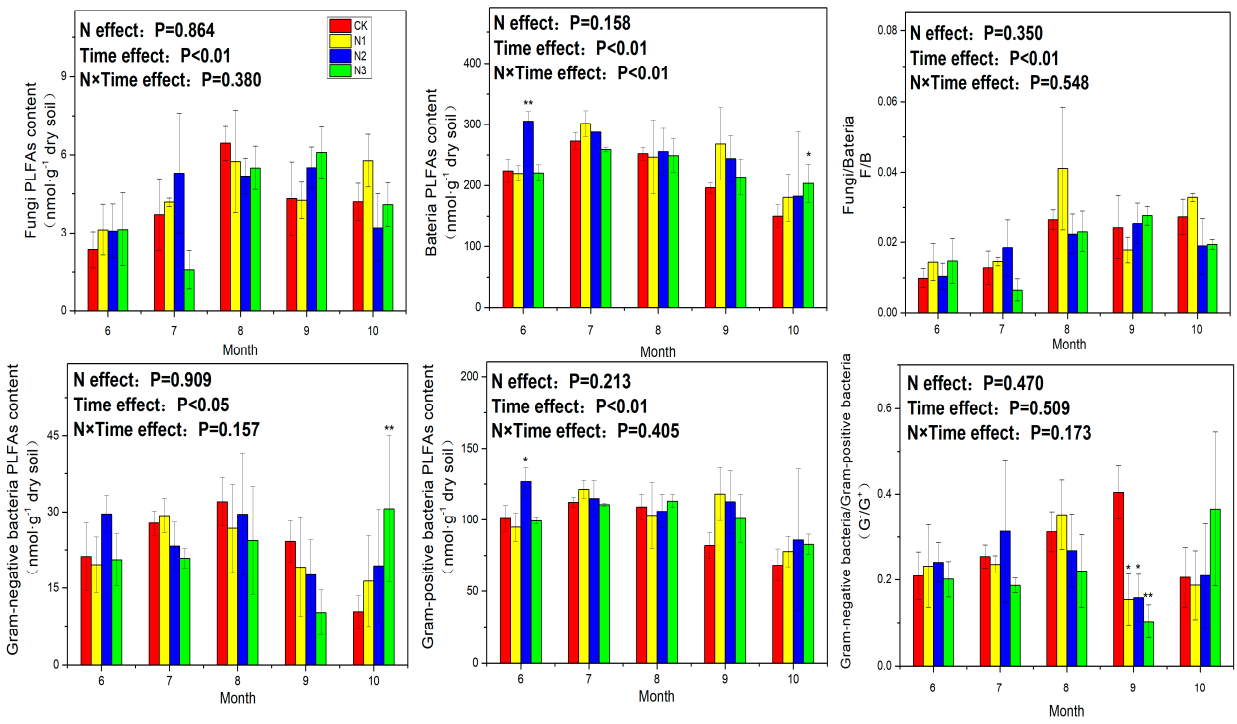


Figure S3 Responses of soil microbial PLFAs content to nitrogen application in a subalpine coniferous forest.

* indicates significant difference between nitrogen treatment and control (P<0.05), ** indicates extremely significant difference between nitrogen treatment and control (P<0.01) (One-way ANOVA, LSD multiple comparison)

Table S1. Correlation coefficients between soil enzyme activity and its stoichiometric ratio, microbial PLFAs content, soil respiration rate, microbial biomass and soil physical and chemical factors (n=180)

Index	ST	SMC	pH	SC	DIN	SP
AP	-0.166*	-0.229**	0.093	-0.211**	-0.196**	-0.067
BG	-0.229**	-0.422**	-0.088	-0.104	-0.078	-0.104
CBH	-0.212*	-0.131	0.029	0.016	0.045	0.019
NAG	-0.150*	-0.056	0.018	-0.014	0.033	0.047
LAP	0.122	-0.009	0.092	-0.048	-0.081	0.025
POD	-0.209**	-0.354**	-0.079	-0.063	-0.130	-0.020
PPO	-0.345*	-0.333**	-0.007	-0.110	-0.109	-0.056
C:P_{EEA}	-0.200**	-0.418**	-0.189*	-0.069	0.052	-0.126
C:N_{EEA}	-0.004	-0.236**	-0.132	0.155*	-0.004	-0.114
N:P_{EEA}	-0.147*	0.060	0.001	-0.069	0.111	0.102
Vector L	-0.017	-0.282**	-0.155*	0.146*	0.002	-0.123
Vector A	-0.097	0.060	-0.003	-0.052	0.110	0.110
B	0.215**	0.410**	-0.059	0.546**	0.543**	0.278**
F	0.212**	0.180*	-0.107	0.084	0.061	0.232**
G^+	0.192**	0.365**	-0.045	0.373**	0.372**	0.232**
G^-	0.105	0.128	-0.085	0.280**	0.282**	0.105
F/B	0.131	-0.099	0.004	-0.213**	-0.152**	0.044
G^-/G^+	0.051	-0.064	0.000	0.054	0.094	0.038
SR	0.422**	0.125	-0.074	0.317**	0.372**	0.157**
HR	0.458**	0.095	-0.110	0.314**	0.347**	0.171**
AR	0.161*	0.105	0.013	0.162**	0.219**	0.058
MBC	0.356**	0.212**	0.126	0.143	0.203**	0.103
MBN	0.266**	-0.045	-0.028	0.278**	0.409**	-0.012

ST：10cm soil temperature；SMC：soil moisture content；SC：soluble carbon；DIN：dissolved inorganic nitrogen；SP：soluble phosphorus. *P<0.05；**P<0.01.

Table S2 Correlation coefficients between soil respiration rate and soil enzyme activity, microbial PLFAs content, microbial biomass (n=180).

index	AP	BG	CBH	LAP	NAG	POD	PPO	B	F	G^+	G^-	F/B	G^-/G^+	MBC	MBN
SR	-0.120	-0.225	-0.055	0.047	0.150	-0.124	-0.274*	0.512**	0.072	0.585**	0.042	-0.141	-0.138	0.523**	0.454**
HR	-0.169	-0.264*	-0.148	0.019	0.072	-0.180	-0.326*	0.409**	0.180	0.535**	-0.051	-0.048	-0.192	0.481**	0.363**
AR	0.008	-0.065	0.109	-0.131	0.199	0.017	-0.073	0.436**	-0.124	0.396**	0.163	0.218	0.007	0.351**	0.386**

*P<0.05；**P<0.01.