

Table S1. Two-way ANOVA test of soil microbial biomass carbon (MBC) at low and high temperatures under NF, CK, WS, and NPK treatments

	F value	p
Treatment	34.65	<0.0001
Temperature	39.35	<0.0001
Treatment*Temperature	3.29	0.03

Table S2. Beta diversity of soil bacterial and fungal communities under CK, NF, WS, and NPK treatments under low (LT) and high (HT) temperatures based on the Aitchison distance.

	Temperature/ Treatment	Beta diversity	A value	Observed delta	Expected delta	P
Bacteria	LT	CK vs NF	0.00	362.75	363.61	0.13
		CK vs WS	0.00	360.24	360.74	0.75
		CK vs NPK	0.00	362.89	363.20	0.64
		NF vs WS	0.01	363.32	366.00	0.06
		NF vs NPK	0.00	365.78	367.49	0.08
		WS vs NPK	0.00	362.48	363.76	0.98
	HT	CK vs NF	0.02	348.19	355.55	<0.01**
		CK vs WS	0.04	329.48	341.56	<0.01**
		CK vs NPK	0.04	329.16	342.11	<0.01**
		NF vs WS	0.06	339.80	361.18	<0.01**
		NF vs NPK	0.06	339.47	360.14	<0.01**
		WS vs NPK	0.00	320.76	321.65	0.05*
	CK	LT vs HT	0.03	349.03	359.60	<0.01**
	NF	LT vs HT	0.03	361.92	372.37	<0.01**
	WS	LT vs HT	0.05	341.19	359.80	<0.01**
	NPK	LT vs HT	0.05	343.33	361.71	<0.01**
		CK vs NF	0.01	314.11	315.72	0.19
		CK vs WS	0.02	290.25	296.93	0.01*

Fungi	LT	CK vs NPK	0.02	299.38	305.00	0.09
		NF vs WS	0.04	294.74	308.41	<0.01**
		NF vs NPK	0.03	303.88	312.93	0.02*
		WS vs NPK	0.01	280.01	282.63	0.01*
		CK vs NF	0.02	313.77	319.90	0.02*
		CK vs WS	0.01	302.40	306.75	0.02*
	HT	CK vs NPK	0.02	299.79	306.95	<0.01**
		NF vs WS	0.04	309.81	321.47	0.01*
		NF vs NPK	0.04	307.20	320.46	<0.01**
		WS vs NPK	0.00	295.82	294.92	0.51
	CK	LT vs HT	0.00	307.29	307.99	0.43
	NF	LT vs HT	0.01	319.90	322.28	0.25
	WS	LT vs HT	0.01	284.66	286.68	0.05*
	NPK	LT vs HT	0.01	291.18	293.24	0.20

Table S3. Two-way ANOVA for soil bacterial and fungal community composition under NF, WS, NPK, and CK treatments

	Treatment		Temperature		Treatment*Temperature	
	F value	p	F value	p	F value	p
Betaproteobacteria	0.93	0.43	11.25	<0.01**	1.09	0.36
Gammaproteobacteria	13.52	<0.001***	8.76	<0.01**	1.82	0.16
Actinobacteria	6.17	<0.01**	1.11	0.30	2.06	0.12
Bacteroidetes	1.18	0.32	0.90	0.35	0.50	0.69
Gemmatimonadetes	15.06	<0.001***	6.87	<0.05	4.17	<0.05*
Firmicutes	0.43	0.74	85.99	<0.001***	1.67	0.19
Alphaproteobacteria	19.74	<0.001***	28.47	<0.001***	3.84	<0.05*
Deltaproteobacteria	25.21	<0.001***	14.34	<0.001***	6.99	<0.001***
Acidobacteria	8.10	<0.001***	3.94	0.06	1.09	0.36
Chloroflexi	21.63	<0.001***	7.87	<0.01**	6.40	<0.01**
Verrucomicrobia	3.85	<0.05*	2.37	0.13	0.60	0.62
Ascomycota	1.62	0.20	3.17	0.08	6.67	<0.001***
Zygomycota	5.86	<0.01**	3.51	0.07	4.49	<0.01**
Basidiomycota	3.49	<0.05*	1.16	0.29	2.91	<0.05*

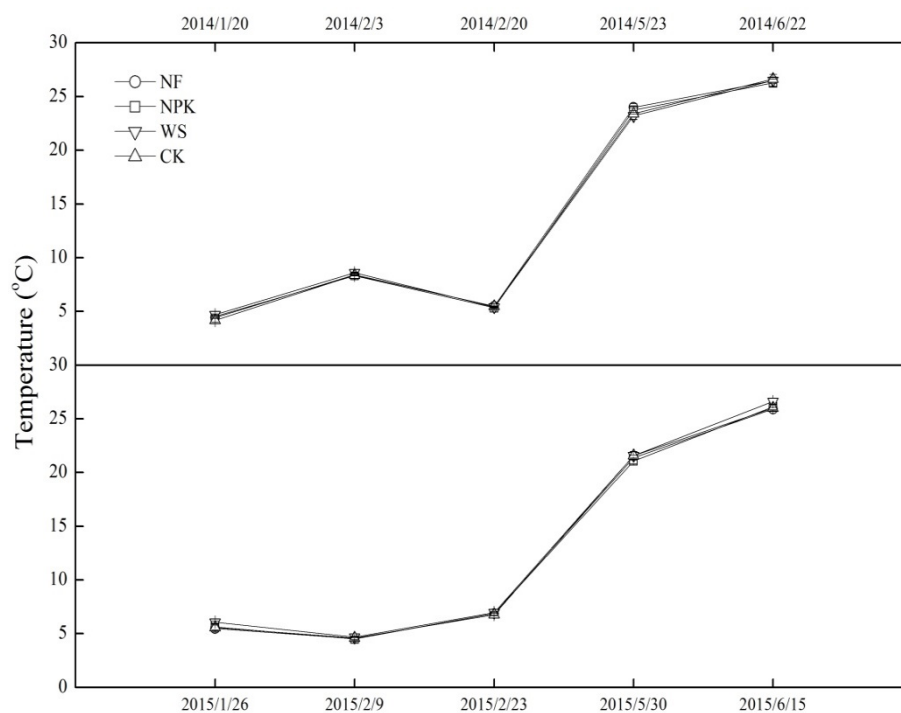


Figure S1. Soil temperature in 2014 and 2015 under the NF, NPK, WS, and CK treatments.

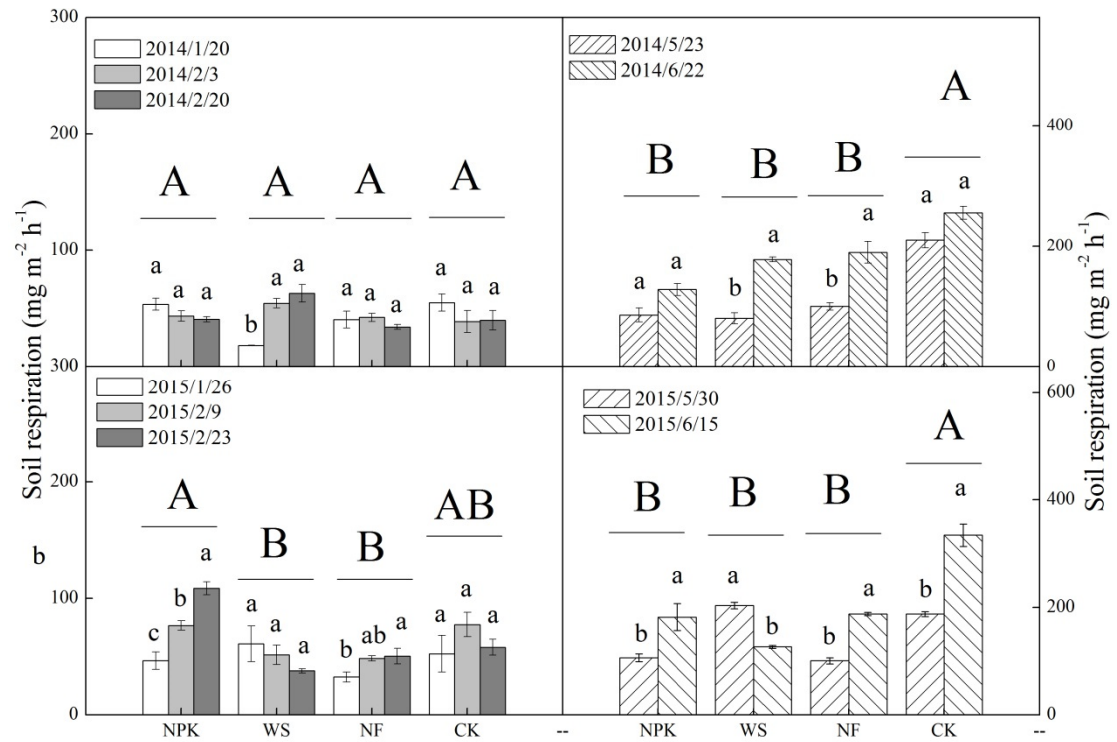


Figure S2. Soil respiration ($\text{mg m}^{-2} \text{h}^{-1}$) in 2014 and 2015 under the NF, NPK, WS, and CK treatments. The different lowercase letters indicate significant differences between months for each treatment, and the different uppercase letters represent significant differences between treatments.

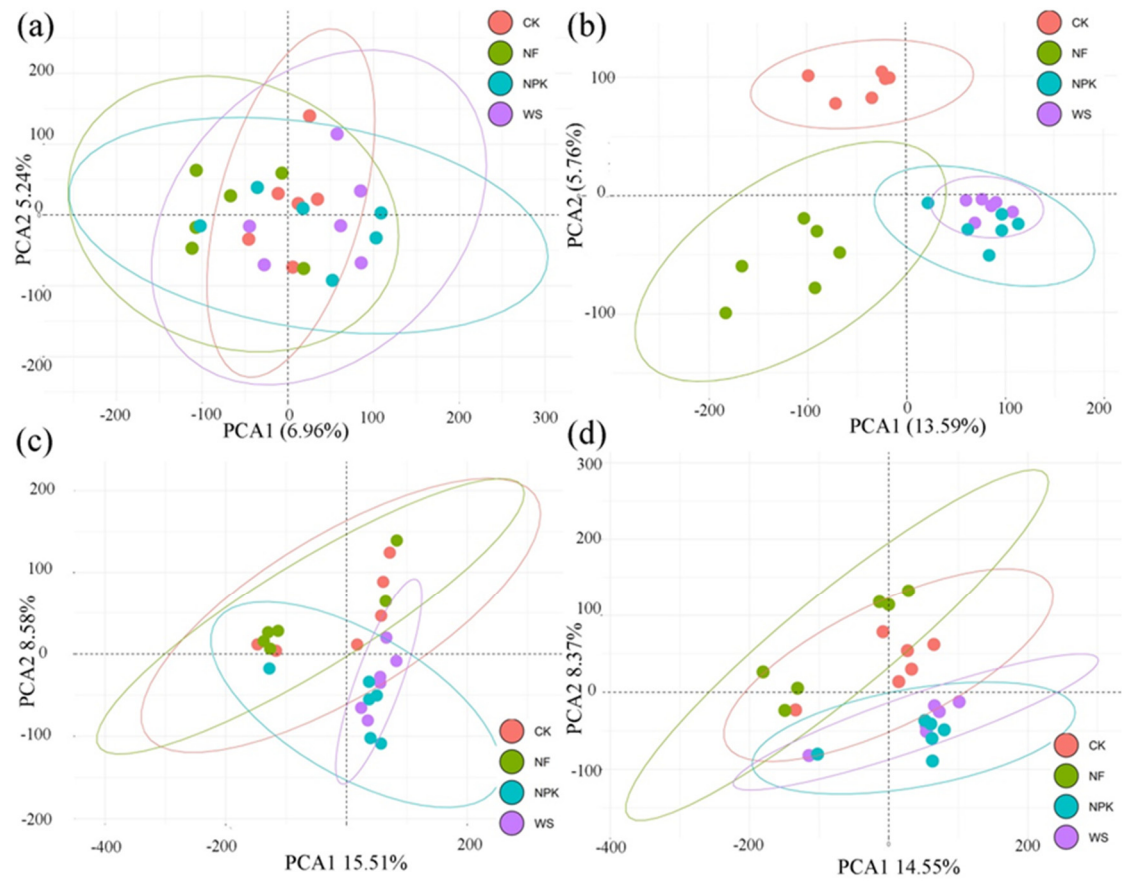


Figure S3. Principal component analysis (PCA) for soil microbial diversity: (a and b) soil bacterial diversity, (c and d) soil fungal diversity, (a and c) soil microbial diversity at low temperatures, (b and d) soil microbial diversity at high temperatures.