

Table S1. Correlation analysis between gross nitrification (GN), denitrification (DN) and soil physical and chemical properties in the enclosure (CK) treatment.

	GN	DN	NH ₄ ⁺ -N	NO ₃ ⁻ -N	IN	SOC	TN	C/N	BD	pH	SM	ST
GN	1											
DN	0.827**	1										
NH ₄ ⁺ -N	0.463*	0.445*	1									
NO ₃ ⁻ -N	0.523**	-0.241	-0.177	1								
IN	-0.455*	-0.171	-0.015	0.987**	1							
SOC	-0.251	-0.344	-0.38	-0.189	-0.255	1						
TN	-0.151	-0.234	-0.383*	0.013	-0.05	0.789**	1					
C/N	-0.204	-0.23	-0.083	-0.319	-0.337	0.482*	-0.157	1				
BD	0.143	0.12	-0.154	-0.063	-0.089	-0.075	0.042	-0.192	1			
pH	-0.164	-0.222	-0.289	-0.114	-0.163	-0.115	-0.25	0.184	-0.055	1		
SM	0.427*	0.227	0.508**	-0.29	-0.211	0.07	0.002	0.105	-0.432*	-0.281	1	
ST	0.216	0.049	-0.229	-0.461*	0.506**	-0.09	-0.13	0.042	0.627**	0.392*	0.436*	1

GN: gross nitrification; DN: denitrification; IN: inorganic nitrogen; SOC: soil organic carbon; TN: total nitrogen; C/N: SOC/TN; BD: bulk density; SM: soil moisture; ST: soil temperature.

Table S2. Correlation analysis between gross nitrification (GN), denitrification (DN) and soil physical and chemical properties in the heavy grazing (G) treatment.

	GN	DN	NH ₄ ⁺ -N	NO ₃ ⁻ -N	IN	SOC	TN	C/N	BD	pH	SM	ST
GN	1											
DN	0.770**	1										
NH ₄ ⁺ -N	0.498**	-0.262	1									
NO ₃ ⁻ -N	0.022	0.071	-0.292	1								
IN	-0.052	0.034	-0.151	0.989**	1							
SOC	-0.373	0.409*	0.17	0.014	0.04	1						
TN	-0.216	-0.239	-0.078	0.246	0.242	0.888**	1					
C/N	-0.395*	0.413*	0.534**	-0.466*	0.401*	0.301	-0.169	1				
BD	-0.116	-0.231	-0.071	0.004	-0.007	0.084	0.041	0.123	1			
pH	-0.383*	-0.335	0.197	0.496**	0.483*	0.13	0.002	0.29	0.002	1		
SM	0.551**	0.372	-0.033	-0.11	-0.119	-0.138	-0.19	0.053	-0.325	-0.363	1	
ST	0.271	-0.091	-0.424*	-0.219	-0.29	-0.212	-0.214	0.001	0.483*	0.23	-0.23	1

GN: gross nitrification; DN: denitrification; IN: inorganic nitrogen; SOC: soil organic carbon; TN: total nitrogen; C/N: SOC/TN; BD: bulk density; SM: soil moisture; ST: soil temperature.

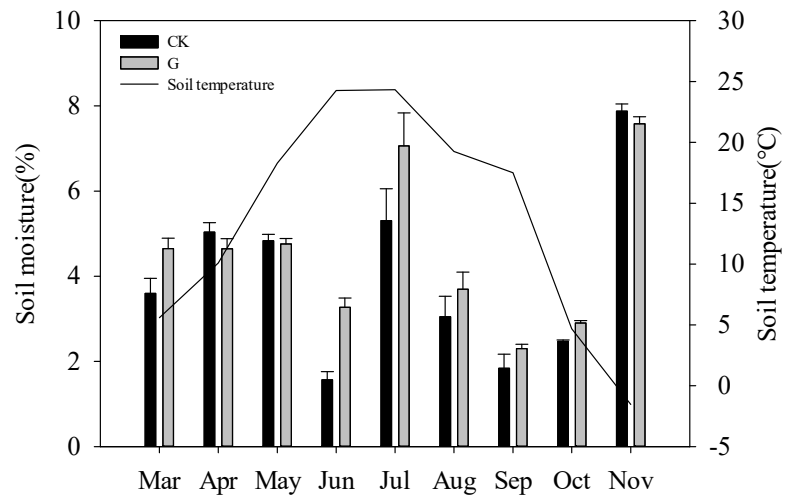


Figure S1. Monthly dynamics of surface soil temperature and moisture in the experimental plot.

CK: enclosure; G: heavy grazing.