

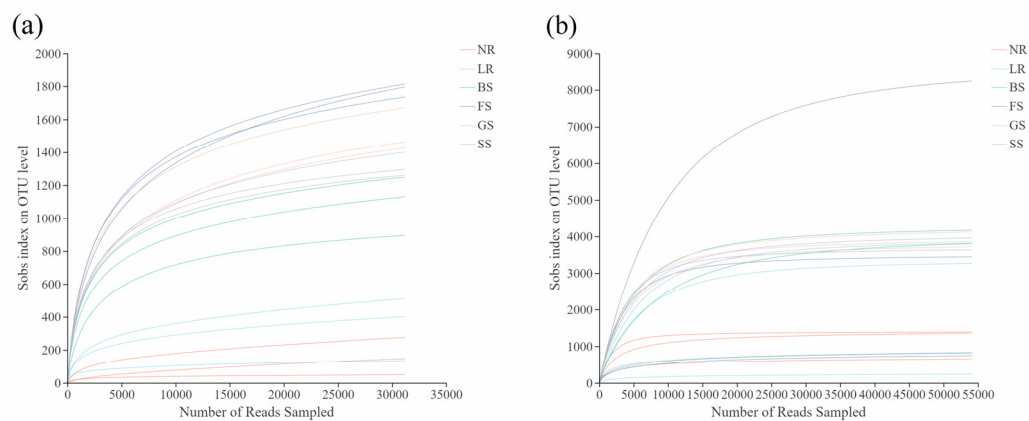


Figure S1. Rarefaction curves for each sample from six groups. (a), the rarefaction curves for each sample of bacterial community; (b), the rarefaction curves for each sample of fungal community. NR: naked rock; LR: lichen-covered rock; BS: bryophyte-covered rock; FS: fern-covered rock; GS: grass-covered rock; SS: shrub-covered rock. The letters stand for the same below.

Table S1. Relative abundance of bacteria and fungi phyla of six samples covered by different organism

Bacteria phyla	NR(%)	LR(%)	BS(%)	FS(%)	GS(%)	SS(%)	<i>p</i> -value
Actinobacteria	90.22±8.09a	33.35±25.71b	33.00±15.56b	14.36±3.50b	25.09±11.93b	30.08±5.63b	P<0.001
Proteobacteria	1.77±1.80b	29.00±28.25a	33.38±5.94a	40.19±2.61a	33.54±8.05a	25.36±0.93a	P<0.05
Chloroflexi	0.51±0.63c	2.34±1.65c	6.07±2.82b	11.88±1.25a	9.46±0.84a	10.38±1.24a	P<0.001
Acidobacteria	0.03±0.04c	0.03±0.02c	7.81±4.61b	5.79±1.28b	13.35±3.01a	13.31±1.42a	P<0.001
Bacteroidetes	4.24±6.22a	13.50±13.18a	6.52±4.33a	5.9±3.77a	2.76±1.20a	4.66±1.46a	P>0.05
Planctomycetes	0.1±0.16e	1.60±2.08de	4.07±1.75cd	10.86±2.63a	6.78±2.30bc	8.24±2.41ab	P<0.001
Cyanobacteria	0.10±0.06a	5.04±7.20a	3.44±3.40a	2.35±0.96a	0.93±1.06a	0.23±0.23a	P>0.05
Firmicutes	0.60±0.91a	6.79±11.27a	0.11±0.14a	0.65±0.64a	0.43±0.28a	0.20±0.256a	P>0.05
Verrucomicrobia	0.003±0.006c	0.003±0.006c	1.59±0.98bc	2.21±0.93ab	1.51±0.14bc	3.41±1.64a	P<0.01
Gemmatimonadetes	0.04±0.05a	1.13±1.82a	0.83±0.57a	1.75±0.32a	1.50±1.18a	1.03±0.60a	P>0.05
Rokubacteria	0±0b	0±0b	0±0b	0.66±1.04ab	1.66±0.48a	1.54±0.86a	P<0.05
Patescibacteria	0.13±0.12b	0.09±0.09b	2.16±0.94a	0.53±0.35b	0.19±0.17b	0.38±0.16b	P<0.001
Nitrospirae	0±0c	0±0c	0.09±0.046c	1.12±1.36a	1.44±1.44a	0.36±0.07b	P<0.05
Latescibacteria	0±0b	0±0b	0±0b	0.18±0.16b	0.59±0.41a	0.35±0.25ab	P<0.05

Deinococcus-Thermus	0.06±0.06ab	0.51±0.53a	0.17±0.28ab	0.02±0.01b	0.02±0.03b	0.003±0.006b	P>0.05
Fungi phyla	NR(%)	LR(%)	BS(%)	FS(%)	GS(%)	SS(%)	<i>P</i> -value
Ascomycota	41.14±40.62a	53.75±32.84a	43.06±19.2a	34.71±36.61a	19.2±6.99a	32.92±28.48a	P>0.05
Basidiomycota	3.72±1.62a	2.8±1.78a	6.24±4.96a	8.22±3.49a	5.82±0.72a	5.32±2.45a	P>0.05
Mortierellomycota	0.13±0.17a	0±0a	4.92±7.75a	1.94±2.44a	0.31±0.11a	1.91±3.03a	P>0.05
unclassified_k__Fungi	54.86±39.10a	42.38±30.36a	42.77±27.31a	53.90±42.78a	72.52±9.34a	59.52±28.91a	P>0.05

Table S2. Values of correlation between environmental factors and the communities of bacteria and fungi.

	Bacteria		Fungi	
	r^2	p_values	r^2	p_values
TOC	0.7595	0.001	0.7803	0.001
TN	0.5886	0.001	0.8654	0.001

TP	0.5991	0.002	0.7225	0.001
C:N	0.4366	0.013	0.8495	0.001
C:P	0.6962	0.001	0.9242	0.001
N:P	0.2848	0.068	0.9222	0.001
pH	0.6264	0.001	0.6677	0.001

The values of r^2 represent the degree of correlation between environmental factors and community structure and diversity; the p -values represent the significance of the correlation degree. $p > 0.05$, no significant correlation; $0.01 < p < 0.05$, significant correlation; $p < 0.001$, highly significant correlation.

