

Table S1. The top 10 models selected from GAMMs for the infracommunity richness, and the estimated Boldface represents statistical significance ($p < 0.05$).

Rank	Intercept	Area	Season	HBL	BCI	Sex
1	-0.14 ± 0.23	0.88 ± 0.22				0.51 ± 0.20
2	-0.14 ± 0.23	0.88 ± 0.22			-0.0040 ± 0.0037	0.51 ± 0.20
3	0.16 ± 0.19	0.88 ± 0.22				
4	0.97 ± 2.46	0.88 ± 0.22		-0.0047 ± 0.010		0.51 ± 0.20
5	-0.09 ± 0.25	0.88 ± 0.22	-0.084 ± 0.19			0.5 ± 0.20
6	0.16 ± 0.19	0.88 ± 0.22			-0.0041 ± 0.0038	
7	0.23 ± 0.21	0.88 ± 0.22	-0.13 ± 0.19			
8	1.43 ± 2.49	0.87 ± 0.22		-0.0054 ± 0.011		
9	1.01 ± 2.45	0.88 ± 0.22		-0.0049 ± 0.010	-0.004 ± 0.0038	0.51 ± 0.20
10	-0.13 ± 0.26	0.88 ± 0.22	-0.011 ± 0.21		-0.0039 ± 0.0040	0.51 ± 0.20

coefficient (\pm standard error) in each model.

Variance of random effect	df	BIC	Δ BIC
0.33	4	168.95	0
0.21	5	171.79	2.84
0.32	3	171.81	2.86
0.25	5	172.70	3.75
0.21	5	172.71	3.76
0.23	4	174.62	5.67
0.26	4	175.31	6.36
0.33	4	175.51	6.55
0.25	6	175.52	6.57
0.28	6	175.74	6.79