

Table S1. Dates of feces collection from Japanese rock ptarmigan

Date	Cage 1		Cage 2		Cage 3		Samle of Adult
	Age of chicks	Sampled date	Age of chicks	Sampled date	Age of chicks	Sampled date	
June	27	1					
	28	2					Cage 1 × 1
	29	3					Cage 2 × 1
	30	4	1	1			Cage 3 × 1
July	1	5	1	2		1	
	2	6	1	3		2	
	3	7	1	4	1	3	
	4	8		5		4	1
	5	9		6	1	5	1
	6	10		7	1	6	1
	7	11	1	8		7	
	8	12		9		8	
	9	13		10	1	9	1
	10	14	1	11		10	
	11	15		12		11	
	12	16		13	1	12	
	13	17		14		13	1
	14	18		15		14	
	15	19		16		15	
	16	20		17	1	16	
	17	21		18		17	1
	18	22	1	19	1	18	1
	19	23		20		19	
20	24		21		20		
21	25		22		21		

Cage 2 × 1
Cage 1 • Cage 3 × 1

Table S2. Effect of age on the relative abundance of common bacterial genera in Japanese rock ptarmigans

Genus	The number of OTUs	1 week old	2 weeks old	3 weeks old	Adult
<i>Olsenella</i>	52	0.25076	0.18724	0.11161	0.14615
<i>Actinomyces</i>	6	0.13004	0.10508	0.06597	0.10808
<i>Alkalibaculum</i>	14	0.04830	0.06265	0.05038	0.07434
<i>Slackia</i>	14	0.06321	0.03732	0.02729	0.06824
<i>Megasphaera</i>	1	0.00375	0.00064	0.00777	0.05158
<i>Shuttleworthia</i>	25	0.08806	0.02626	0.03659	0.04340
<i>Erysipelotrichaceae incertae sedis</i>	4	0.00243	0.12268	0.03593	0.04146
<i>Vallitalea</i>	1	0.00262	0.00371	0.00958	0.02767
<i>Robinsoniella</i>	9	0.01075	0.00852	0.00648	0.02334
<i>Defluviitalea</i>	2	0.00289	0.00442	0.00043	0.02223
<i>Syntrophococcus</i>	5	0.00822	0.00868	0.00640	0.02212
<i>Megamonas</i>	5	0.00193	0.00473	0.03374	0.02123
<i>Fusicatenibacter</i>	6	0.14638	0.05723	0.13851	0.01907
<i>Ruminococcus2</i>	49	0.00638	0.00625	0.00390	0.01897
<i>Bifidobacterium</i>	1	0.00713	0.00273	0.00547	0.01788
<i>Eubacterium</i>	3	0.00679	0.00937	0.00655	0.01575
<i>Proteinivorax</i>	1	0.00787	0.00609	0.00338	0.01372
<i>Citrobacter</i>	1	0.00005	0.00008	0.03688	0.01270
<i>Lachnospiraceae incertae sedis</i>	32	0.02720	0.03292	0.02865	0.01243
<i>Anaerobacterium</i>	12	0.00109	0.00153	0.00318	0.01194
<i>Hungatella</i>	6	0.00891	0.02150	0.04581	0.01189
<i>Flavonifractor</i>	17	0.00621	0.00422	0.00204	0.01183
<i>Clostridium XVIII</i>	12	0.00935	0.05847	0.02520	0.01154
<i>Parvibacter</i>	11	0.00763	0.01180	0.00631	0.00826
<i>Deismabacter</i>	16	0.00589	0.00393	0.00339	0.00713
<i>Anaeroglobus</i>	2	0.00138	0.00153	0.00292	0.00580
<i>Clostridium XIVa</i>	11	0.00947	0.03570	0.01616	0.00549
<i>Coprococcus</i>	20	0.00582	0.02304	0.01522	0.00537
<i>Dialister</i>	1	0.00020	0.00013	0.00027	0.00395
<i>Asaccharobacter</i>	2	0.03125	0.02291	0.00792	0.00379
<i>Faecalitalea</i>	1	0.00132	0.00075	0.00024	0.00351
<i>Pseudoflavonifractor</i>	8	0.00257	0.00226	0.00426	0.00331
<i>Adlercreutzia</i>	6	0.00303	0.00096	0.00122	0.00254
<i>Anaerorhabdus</i>	1	0.00070	0.00058	0.00022	0.00238
<i>Lachnoanaerobaculum</i>	2	0.00071	0.00089	0.00067	0.00225
<i>Papillibacter</i>	2	0.00069	0.00055	0.00083	0.00214
<i>Eggerthella</i>	3	0.00194	0.00136	0.00095	0.00167
<i>Sporobacter</i>	2	0.00056	0.00015	0.00045	0.00149
<i>Acidaminobacter</i>	3	0.00055	0.00082	0.00031	0.00139
<i>Anaerotruncus</i>	3	0.00054	0.00208	0.00199	0.00138
<i>Anaerospora</i>	1	0.00009	0.00045	0.00470	0.00135
<i>Eisenbergiella</i>	4	0.00110	0.00070	0.00045	0.00134
<i>Acetatifactor</i>	1	0.00015	0.00004	0.00046	0.00125
<i>Psychrosinus</i>	2	0.00018	0.00010	0.00009	0.00125
<i>Geosporobacter</i>	2	0.00016	0.00020	0.00006	0.00118
<i>Intestinimonas</i>	4	0.00289	0.00288	0.00489	0.00118
<i>Scardovia</i>	1	0.00043	0.00019	0.00031	0.00118
<i>Coriobacterium</i>	2	0.00022	0.00015	0.00038	0.00103
<i>Anaerovorax</i>	4	0.00086	0.00173	0.00048	0.00093
<i>Murimonas</i>	4	0.00070	0.00099	0.00053	0.00092
<i>Allobaculum</i>	1	0.00091	0.00107	0.00012	0.00086
<i>Clostridium IV</i>	2	0.00085	0.00240	0.00309	0.00075
<i>Acetitomaculum</i>	2	0.00050	0.00041	0.00039	0.00071
<i>Christensenella</i>	3	0.00041	0.00134	0.00089	0.00070
<i>Cryptobacterium</i>	3	0.00035	0.00720	0.00498	0.00065
<i>Blautia</i>	3	0.00088	0.00075	0.00043	0.00064
<i>Mogibacterium</i>	1	0.00024	0.00067	0.00021	0.00031
<i>Paraeggerthella</i>	1	0.00023	0.00010	0.00007	0.00030
<i>Denitrobacterium</i>	1	0.00024	0.00022	0.00005	0.00026
<i>Gordonibacter</i>	1	0.00021	0.00016	0.00005	0.00024
<i>Faecalicoccus</i>	1	0.00029	0.00226	0.00573	0.00023
<i>Paraprevotella</i>	1	0.00016	0.00004	0.00002	0.00020
<i>Brassicibacter</i>	1	0.00012	0.00008	0.00003	0.00019
<i>Dorea</i>	1	0.00226	0.00599	0.00546	0.00019
<i>Catonella</i>	1	0.00008	0.00003	0.00002	0.00019
<i>Lactococcus</i>	2	0.00010	0.00155	0.00110	0.00016
<i>Ethanoligenens</i>	1	0.00004	0.00013	0.00008	0.00015
<i>Acetanaerobacterium</i>	1	0.00006	0.00030	0.00013	0.00013
<i>Desulfitispora</i>	1	0.00014	0.00016	0.00007	0.00011
<i>Ruminococcus</i>	1	0.00002	0.00011	0.00009	0.00009
<i>Anaerosolibacter</i>	1	0.00012	0.00012	0.00006	0.00007
<i>Marvinbryantia</i>	1	0.00001	0.00010	0.00010	0.00003
<i>Butyricoccus</i>	1	0.00022	0.00019	0.00055	0.00003
<i>Arthrobacter</i>	1	0.00002	0.00006	0.00003	0.00002
<i>Lachnospira</i>	1	0.00060	0.00013	0.00026	0.00001
Total	431	0.93046	0.91477	0.79141	0.88821

<0.00010
 0.00010-0.00099
 0.00100-0.00999
 0.01000-0.09999
 ≥ 0.10000

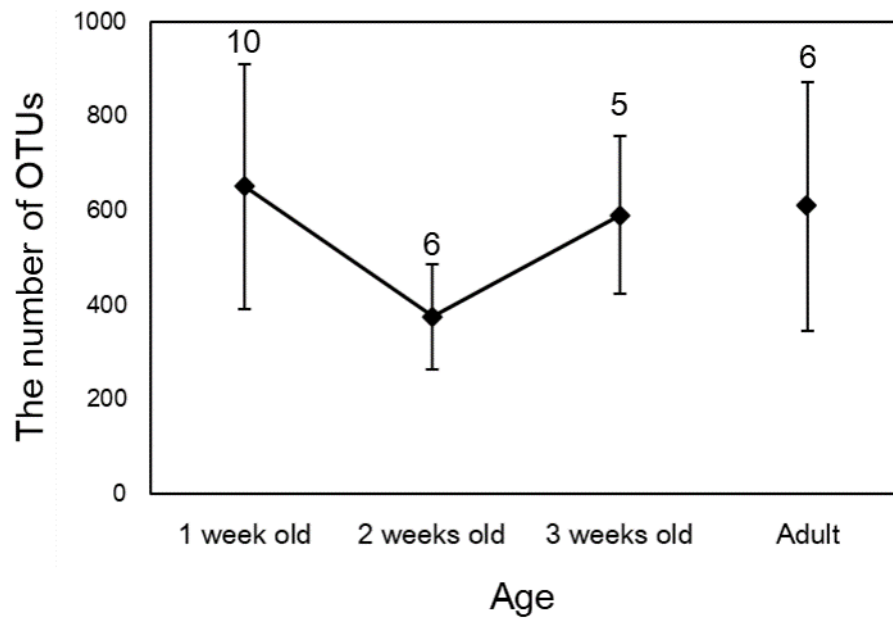


Fig. S1. Abundance of bacterial operational taxonomic units (OTUs) in the cecal microbiome of Japanese rock ptarmigans. Cecal feces were collected from 1-, 2-, and 3-week-old chicks, as well from their hens. Error bars indicate standard deviation values.

The figures above error bars indicate the sample numbers.

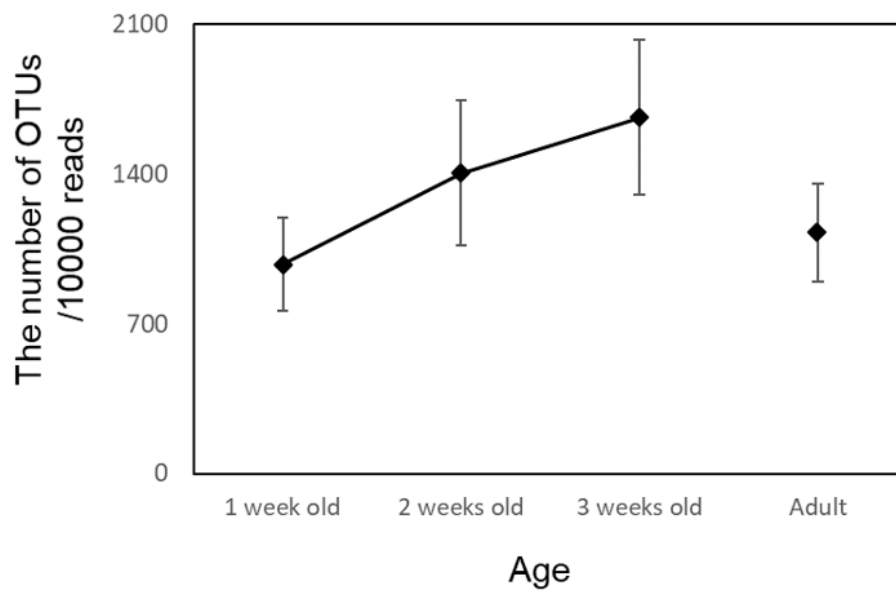


Fig. S2. Normalized abundance of bacterial operational taxonomic units (OTUs) detected in the cecal microbiomes of Japanese rock ptarmigans. The data include OTUs with less than three reads in each sample. OTU numbers were normalized by total read number, in order to avoid bias from differences in sequencing depth.