

Table S3. List of unique genera in unused RMS bedding or in unused straw.

RMS	# OTU	Phylum	34
	70	Proteobacteria	Escherichia/Shigella
	169	Actinobacteria	Thermobispora
	244	Proteobacteria	Idiomarina
	301	Proteobacteria	Rheinheimera
	309	Proteobacteria	Schlegelella
	356	Actinobacteria	Thermopolyspora
	363	Proteobacteria	Sandarakinorhabdus
	382	Verrucomicrobia	Verrucomicrobiales_unclassified
	422	Proteobacteria	Alteromonadales_unclassified
	425	Proteobacteria	Chelatococcus
	437	Proteobacteria	Methylobacillus
	444	Firmicutes	Halocella
	551	Chloroflexi	Sphaerobacter
	555	Actinobacteria	Cellulomonas
	607	Actinobacteria	Jonesia
	630	Firmicutes	Ammoniibacillus
	634	Proteobacteria	Yersinia
	636	Proteobacteria	Neisseriaceae_unclassified
	637	Firmicutes	Tepidimicrobium
	663	Firmicutes	Sinibacillus
	695	Proteobacteria	Ignatzschineria
	708	Firmicutes	Paenisporosarcina
	715	Proteobacteria	Rhodopirellula
	722	Firmicutes	Sphingorhabdus
	727	Planctomycetes	Planctomicrobium
	731	Firmicutes	Clostridium_III
	738	Proteobacteria	Marinobacter
	755	Actinobacteria	Actinotalea
	815	Actinobacteria	Piscicoccus
	825	Actinobacteria	Nomomuraea
	877	Firmicutes	Ornithinibacillus
	950	Proteobacteria	Bradymonas
	966	Bacteroidetes	Cryomorpha
	973	Firmicutes	Megasphaera
	977	Actinobacteria	Leifsonia
	994	Actinobacteria	Demequina
	1004	Proteobacteria	Nannocystaceae_unclassified
	1015	Actinobacteria	Gulosibacter
	1020	Actinobacteria	Gordonia
	1024	Bacteroidetes	Brumimicrobium
	1043	Actinobacteria	Thermomonosporaceae_unclassified
	1045	Proteobacteria	Nannocystis
	1055	Fibrobacteres	Fibrobacteres_unclassified
	1082	Firmicutes	Saccharococcus
	1095	Proteobacteria	Bordetella
	1112	Proteobacteria	Vulgatibacter

1127	Proteobacteria	Moraxellaceae_unclassified
1174	Firmicutes	Peptostreptococcus
1208	Verrucomicrobia	Puniceicoccaceae_unclassified
1229	Firmicutes	Geobacillus
1235	Bacteroidetes	Proteiniphilum
1259	Firmicutes	Sedimentibacter
1266	Chloroflexi	Litorilinea
1281	Actinobacteria	Ornithinococcus
1311	Bacteroidetes	Flavobacteriales_unclassified
1358	Actinobacteria	Georgenia
1390	Firmicutes	Acidaminococcaceae_unclassified
1397	Actinobacteria	Glycomyces
1401	Proteobacteria	Oceanospirillaceae_unclassified
1427	Proteobacteria	Lysobacter
1432	Actinobacteria	Corynebacteriaceae_unclassified
1435	Proteobacteria	Pseudohongiella
1477	Actinobacteria	Thermomonospora
1538	Proteobacteria	Maricurvus
1541	Firmicutes	Brevibacillus
1561	Firmicutes	Holdemania
1576	Proteobacteria	Steroidobacter
1609	Actinobacteria	Thermasporomyces
1615	Fusobacteria	Fusobacterium
1622	Bacteroidetes	Muricauda
1623	Proteobacteria	Vibrio
1637	Proteobacteria	proteus
1638	Proteobacteria	Ferrovibrio
1682	Firmicutes	Fastidiosipila
1686	Proteobacteria	Thauera
1688	Proteobacteria	Campylobacter
1729	Proteobacteria	Castellaniella
1735	Proteobacteria	Sandaracinus
1754	Proteobacteria	Alteromonadaceae_unclassified
1756	Actinobacteria	Actinomyces
1761	Chloroflexi	Chloroflexales_unclassified
1791	Firmicutes	Trichococcus
1815	Firmicutes	Defluviitalea
1824	Firmicutes	Mobilitalea
1851	Proteobacteria	Alcaligenes
1852	Bacteroidetes	Mariniphaga
1886	Actinobacteria	Cellulosimicrobium
1902	Proteobacteria	Sinobacteraceae_unclassified
1907	SR1	SR1_unclassified
1924	Bacteroidetes	Bergeyella
1963	Firmicutes	Tepidanaerobacter
1971	Firmicutes	Proteiniborus
1972	Proteobacteria	Sorangium
2039	Synergistetes	Synergistaceae_unclassified
2159	Firmicutes	Ercella

2161	Fibrobacteres	Fibrobacter
2173	Bacteroidetes	Dysgonomonas
2194	Proteobacteria	Parvibaculum
2205	Firmicutes	Gallicola
2207	Bacteroidetes	Gelidibacter
2263	Proteobacteria	Herminiimonas
2304	BRC1	BRC1_unclassified
2305	Planctomycetes	Blastopirellula
2310	Proteobacteria	Constrictibacter
2325	Euryarchaeota	Methanosarcina
2403	Firmicutes	Halolactibacillus
2463	Proteobacteria	Kerstersia
2483	Proteobacteria	Chondromyces
2488	Chloroflexi	Oscillochloris
2534	Firmicutes	Lactobacillaceae_unclassified
2547	Actinobacteria	Bifidobacteriaceae_unclassified
2549	Proteobacteria	Oceanibaculum
2557	Firmicutes	Helcococcus
2594	Proteobacteria	Marinobacterium
2608	Euryarchaeota	Methanocorpusculum
2633	Bacteroidetes	Odoribacter
2706	Firmicutes	Saccharofermentans
2727	Firmicutes	Paenivacillaceae_2_unclassified
2751	Euryarchaeota	Methanobacterium
2759	Firmicutes	Thermoactinomycetaceae_1_unclassified
2775	Proteobacteria	Oceanospirillales_unclassified
2802	Actinobacteria	Stackebrandtia
2803	Firmicutes	Parasporobacterium
2825	Firmicutes	Acetoanaerobium
2946	Proteobacteria	Serpens
2958	Proteobacteria	Desulfovibrio
2969	Bacteroidetes	Flammeovirgaceae_unclassified
2983	Actinobacteria	Bogoriellaceae_unclassified
2994	Proteobacteria	Sutterella
2996	Bacteroidetes	Arenibacter
3035	Firmicutes	Guggenheimella
3048	Bacteroidetes	Galbibacter
3067	Bacteroidetes	Rhodothermaceae_unclassified
3090	Firmicutes	Peptoniphilus
3096	Proteobacteria	Burkholderiaceae_unclassified
3118	Proteobacteria	Nitrosomonas
3249	Proteobacteria	Rhodoligotrophos
3262	Proteobacteria	Asticcacaulis
3319	Proteobacteria	Sandaracinobacter
3350	Bacteroidetes	Anaerocella
3471	Firmicutes	Thermaerobacter
3476	Bacteroidetes	Macellibacteroides
3478	Proteobacteria	Halobacteriovorax
3487	Firmicutes	Butyricicoccus

3497	Bacteroidetes	Mariniflexile
3503	Firmicutes	Eubacteriaceae_unclassified
3506	Firmicutes	Caldicoprobacter
3528	Firmicutes	Selenomonas
3597	Proteobacteria	Desulfovibrionaceae_unclassified
3608	Bacteroidetes	Vitellibacter
3676	Proteobacteria	Morganella
3778	Proteobacteria	Maricella_unclassified
3800	Proteobacteria	Zobellella
3821	Proteobacteria	GammaProteobacteria_incertae_sedis_unclassified
3905	Firmicutes	Alkalibaculum
3918	Firmicutes	Sharpea
3938	Proteobacteria	Brucellaceae_unclassified
3951	Synergistetes	Aminivibrio
4095	Proteobacteria	Shewanella
4109	Firmicutes	Proteocatella
4131	Bacteroidetes	Prolixibacteraceae_unclassified
4277	Bacteroidetes	Geofilum
4287	Proteobacteria	Paenochrobactrum
4322	Actinobacteria	Parvibacter
4359	Proteobacteria	Sneathiella
4375	Actinobacteria	Tetrasphaera
4416	Bacteroidetes	Ricknellaceae_unclassified
4421	Bacteroidetes	Winogradskyella
4638	Proteobacteria	Thiopseudomonas
4645	Proteobacteria	Pseudochrobactrum
4721	Firmicutes	Acidaminococcus
4728	Proteobacteria	Candidimonas
4856	Actinobacteria	Thermocrispum
4943	Actinobacteria	Atopobium
5061	Firmicutes	Caldanaerovirga
5069	Firmicutes	Ammoniphilus
5302	Firmicutes	Syntrophococcus
5303	Bacteroidetes	Sporocytophaga
5408	Firmicutes	Succiniclasicum
5438	Firmicutes	Kandleria
5558	Actinobacteria	Denitrobacterium
5571	Firmicutes	Alkaliphilus
5583	Firmicutes	Allisonella
5629	Proteobacteria	Pseudocheilatozoon
5651	Firmicutes	Caldalkalibacillus
5705	Verrucomicrobia	Cerasicoccus
5977	Firmicutes	Desulfotomaculum
6012	Proteobacteria	Pelistega
6110	Proteobacteria	Bacteriovoraceae_unclassified
6122	Firmicutes	Pseudobutyrvibrio
6240	Actinobacteria	Ilumatobacter
6352	Spirochaetes	Spirochaetaceae_unclassified
6474	Actinobacteria	Propionibacteriaceae_unclassified

	6524	Chloroflexi	Thermomicrobia_unclassified
	6683	Verrucomicrobia	opitutae_unclassified
	6836	Actinobacteria	Asaccharobacter
	6876	Firmicutes	Butyrivibrio
	6889	Firmicutes	Schwartzia
	6901	Chloroflexi	Caldilineaceae_unclassified
	7035	Proteobacteria	Chromatiales_unclassified
	7743	Firmicutes	Aeribacillus
	7938	Firmicutes	Anaerosphaera
	7947	Firmicutes	Eubacterium
	7952	Actinobacteria	Iamia
	7961	Firmicutes	Cohnella
	8212	Firmicutes	Anaerofilum
	8281	Euryarchaeota	Methanomassiliicoccus
	8452	Euryarchaeota	Methanoculleus
	8748	Firmicutes	Hespellia
	8858	Firmicutes	Clostridiales_Incertae_Sedis_III_unclassified
	8965	Firmicutes	Peptococcus
	9772	Actinobacteria	Tessaracoccus
	12152	Spirochaetes	Sphaerochaeta
	13187	Firmicutes	Desulfonispota
	28643	Proteobacteria	Xanthomonadales_unclassified
	29926	Proteobacteria	Pseudomonadales_unclassified
	36110	Firmicutes	Tepidibacillus
Straw	65	Proteobacteria	Polaromonas
	168	Actinobacteria	Rathayibacter
	170	Actinobacteria	Kineococcus
	232	Actinobacteria	Curtobacterium
	250	Proteobacteria	Aureimonas
	263	Actinobacteria	Geodermatophilus
	272	Actinobacteria	Saccharopolyspora
	310	Actinobacteria	Clavibacter
	445	Firmicutes	Caryophanon
	454	Bacteroidetes	Spirosoma
	475	Proteobacteria	Pseudorhodoferax
	482	Actinobacteria	Actinopolysporaceae_unclassified
	763	Deinococcus-Thermus	Deinococcus
	806	Actinobacteria	Quadrisphaera
	824	Bacteroidetes	Fibrella
	847	Actinobacteria	Williamsia
	941	Proteobacteria	Acidovorax
	981	Proteobacteria	Aurantimonadaceae_unclassified
	1037	Firmicutes	Saccharibacillus
	1081	Actinobacteria	Patulibacter
	1221	Firmicutes	Planomicrobium
	1336	Proteobacteria	Ketogulonicigenium
	1474	Proteobacteria	Pseudoalteromonas
	1480	Actinobacteria	Prauserella
	1500	Actinobacteria	Nakamurella

1553	Actinobacteria	Pseudokineococcus
1613	Firmicutes	Exiguobacterium
1774	Actinobacteria	Marmoricola
1921	Bacteroidetes	Siphonobacter
1995	Actinobacteria	Actinomycetospora
2063	Proteobacteria	Agaricicola
2113	Actinobacteria	Kineosporia
2224	Actinobacteria	Agromyces
2235	Firmicutes	Anaerostipes
2246	Proteobacteria	Caulobacter
2260	Thaumarchaeota	Nitrososphaera_unclassified
2261	Proteobacteria	Acidisoma
2452	Proteobacteria	Rickettsia
2459	Bacteroidetes	Terrimonas
2612	Actinobacteria	Terrabacter
2637	Proteobacteria	Burkholderia
2701	Proteobacteria	Bradyrhizobium
2734	Proteobacteria	Rhizorhabdus
2869	Actinobacteria	Blastococcus
2915	Proteobacteria	Skermanella
3055	Proteobacteria	Aquabacterium
3176	Armatimonadetes	Armatimonadetes_gp1
3384	Proteobacteria	Methylophilus
3446	Proteobacteria	Candidatus_Procabacter
3557	Proteobacteria	Kaistia
3699	Armatimonadetes	Armatimonadetes_unclassified
3881	Proteobacteria	Chiayiivirga
4026	Proteobacteria	Rhodopseudomonas
4097	Acidobacteria	Terriglobus_unclassified
4357	Proteobacteria	Cystobacteraceae_unclassified
4427	Actinobacteria	Gaiella
4548	Bacteroidetes	Flavisolibacter
4625	Proteobacteria	Orientia
4773	Actinobacteria	Actinoplanes
4789	Proteobacteria	Reyranella_unclassified
4899	Proteobacteria	Rickettsiaceae_unclassified
4916	Actinobacteria	Phycococcus
4965	Bacteroidetes	Chitinophaga
5206	Proteobacteria	Aminobacter
5248	Bacteroidetes	Ferruginibacter
5345	Actinobacteria	Blastocatella_unclassified
5372	Proteobacteria	Alkanindiges
5461	Actinobacteria	Agrococcus
5535	Bacteroidetes	Rubrivirga
5557	Proteobacteria	Belnapia
5666	Proteobacteria	Alsobacter
5788	Proteobacteria	Noviherbaspirillum
5890	candidate_division_W	Candidate_division_WPS-1_unclassified
	PS-1	

6382	Armatimonadetes	Armatimonadetes_gp5_unclassified
6432	Actinobacteria	Dactylosporangium
6522	Actinobacteria	Oryzihumus
6649	Bacteroidetes	Parasegetibacter
6986	Firmicutes	Tumebacillus
7144	Chlamydiae	Parachlamydiaceae_unclassified
7370	Acidobacteria	Gp7_unclassified
7793	Proteobacteria	Labilithrix
8012	Proteobacteria	Myxococcaceae_unclassified
8318	Bacteroidetes	Larkinella
8324	Acidobacteria	Gp3_unclassified
8534	Proteobacteria	Xanthobacteraceae_unclassified
8768	Acidobacteria	Gp4_unclassified
9130	Bacteroidetes	Segetibacter
9415	Actinobacteria	Modestobacter
9421	Proteobacteria	Beijerinckia
10340	Planctomycetes	Singulisphaera
10360	Proteobacteria	Methylobacteriaceae_unclassified
10668	Bacteroidetes	Adhaeribacter
10960	Armatimonadetes	Chthonomonas/Armatimonadetes_gp3
10968	Actinobacteria	Jatrophihabitans
11344	Bacteroidetes	Sediminibacterium
12210	Chloroflexi	Herpetosiphon
13548	Actinobacteria	Kineosporiaceae_unclassified
14239	Proteobacteria	Rubellimicrobium
14634	Planctomycetes	Zavarzinella
15290	Acidobacteria	Gp1_unclassified
16489	Acidobacteria	Acidobacteria_Gp3_unclassified
19300	Chloroflexi	Ktedonobacter
19735	Planctomycetes	Gemmata
