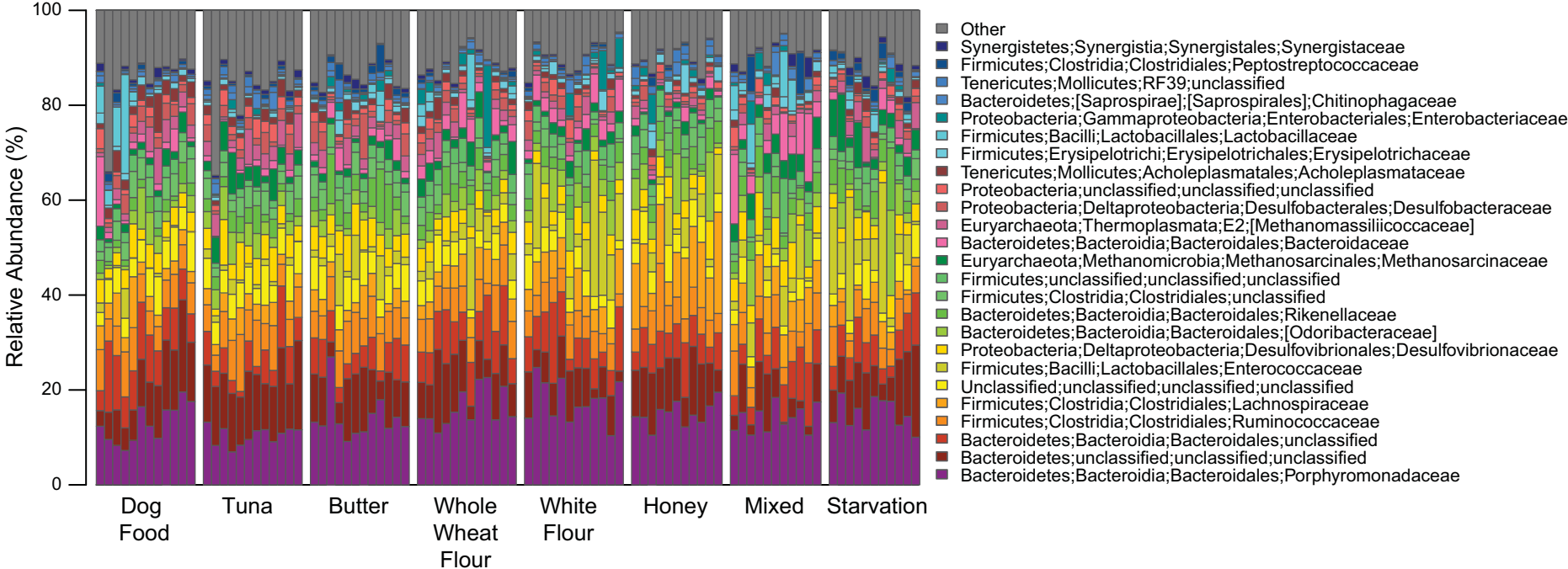


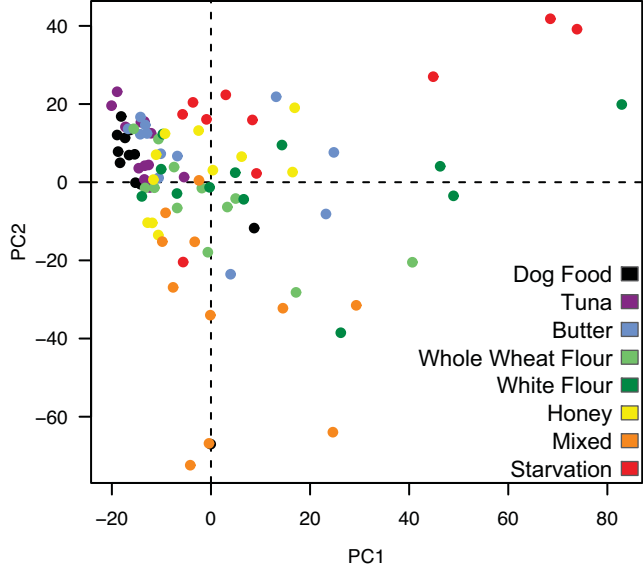
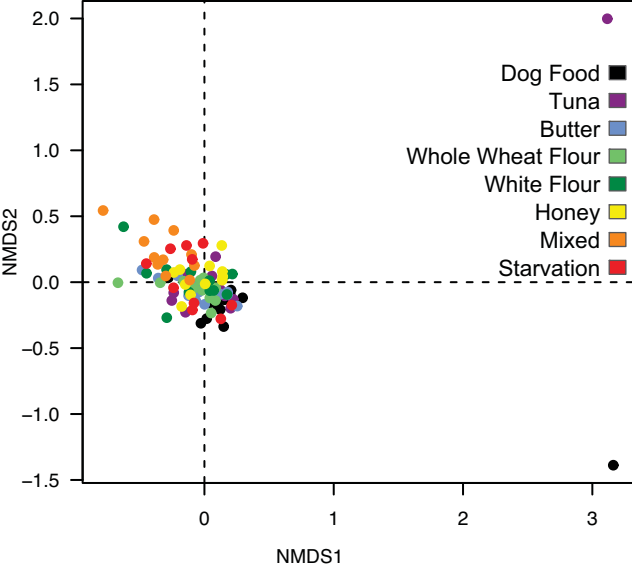
Supplemental Table 1. Barcodes used in Caporaso Primers

<b>Forward Barcode</b>	<b>Reverse Barcode</b>
1. AACCAACC	1. GTGTGTGT
2. CCAACCAA	2. AACGAACG
3. GGTTGGTT	3. TGTCTCAC
4. TTGGTTGG	4. CCAACGTA
5. AGTCGACT	5. CGTAGCAT
6. CCATCCTA	6. TTCGTTTCG
7. GTCAAGAG	7. ACACAGTC
8. TAGGTTGC	8. GAGTCAGA
9. AAGCAAGC	9. CGATGGTT
10. CGTTCGTT	10. ATCGTTGG
11. GCAAGCAA	11. TAGCAACC
12. TTCGTTTCG	12. GCTACCAA
13. AGGTGAAC	13. CACTGAGT
14. CTACAGCA	14. AGTGTCTG
15. GACACTGT	15. TCACAGAC
16. TCTGTGTC	16. GTGACTCA

515F Primer: AATGATACGGCGACCACCGAGA TCTACAC XXXXXXXX TATGGTAATT CA  
GTGCCAGCMGCCGCGGTAA; 806R Primer: CAAGCAGAAGACGGCATACGAGAT XXXXXXXX  
AGCAGCTCCAG AC GGACTACHVGGGTWTCTAA



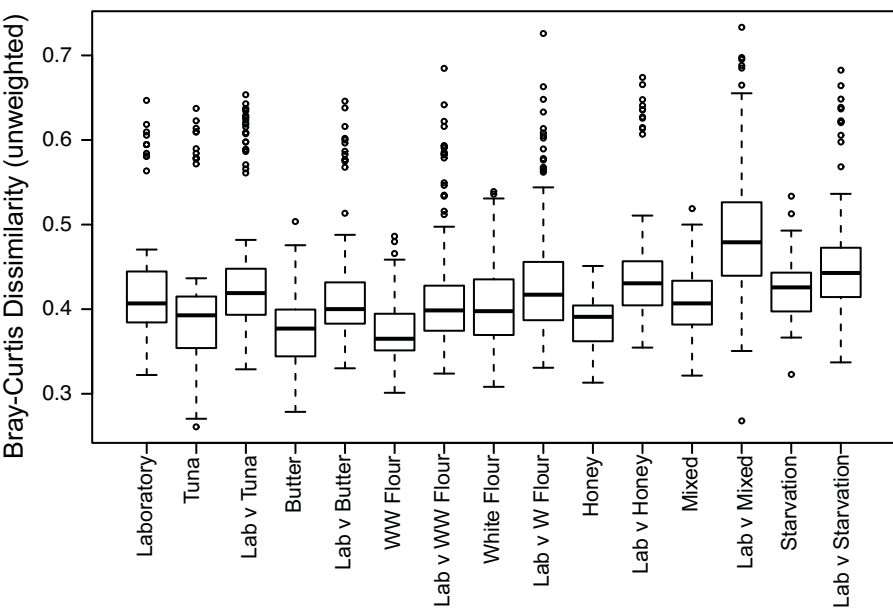
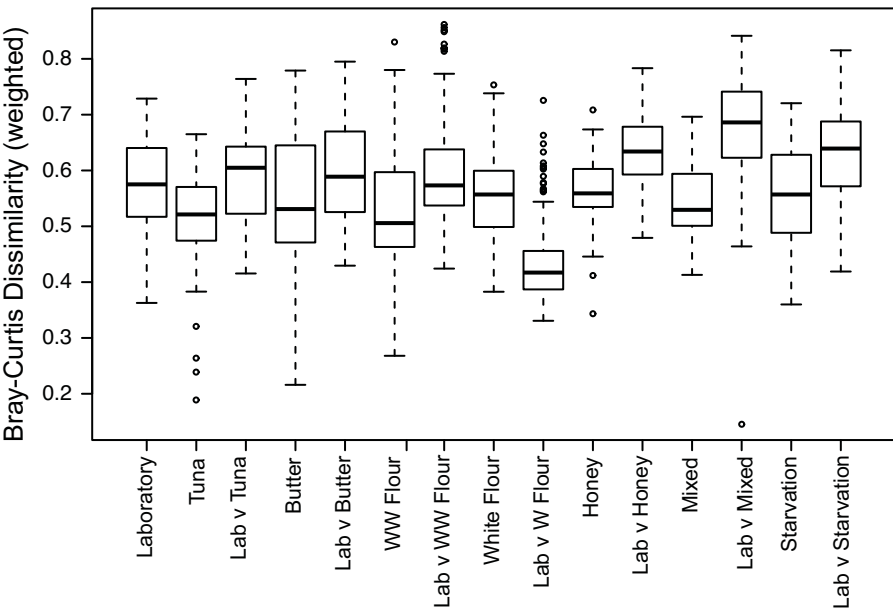
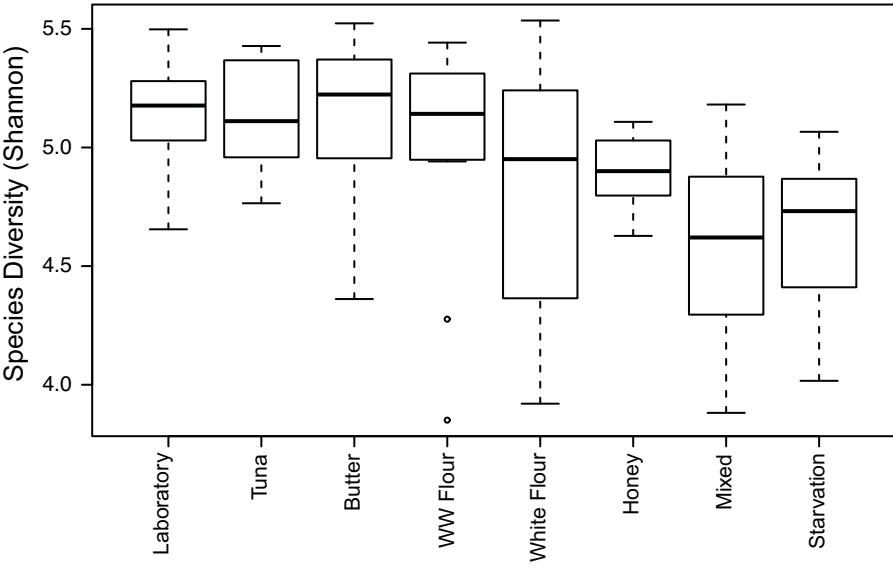
Supplemental Figure 1. Relative abundance of microbial families across 14 day diet treatments (Table 1). Each bar represents an individual cockroach gut. The 25 most abundant families are shown.



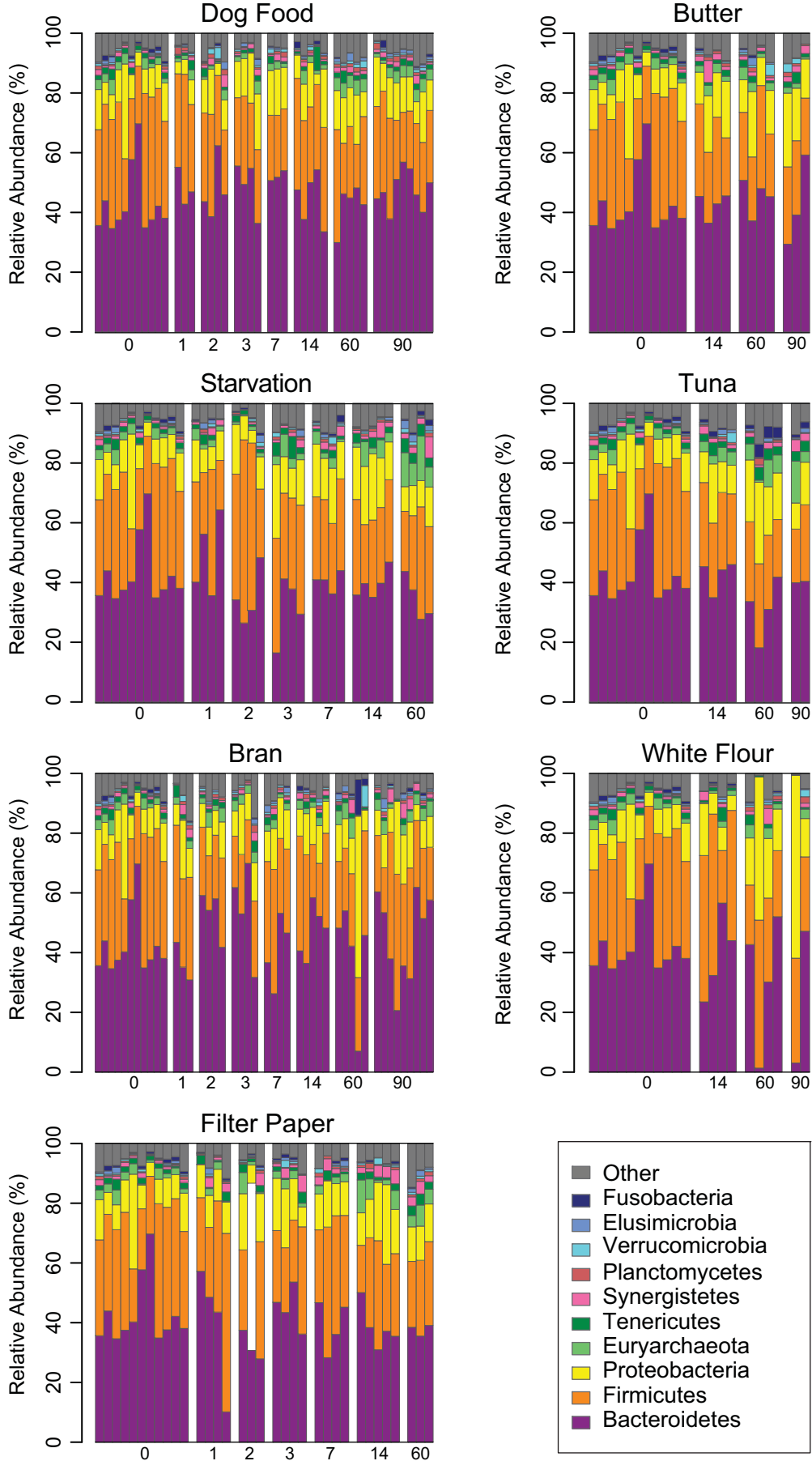
Supplemental Figure 2. Ordination analysis of 14-day diet treatments. Non-metric multidimensional scaling (left) and principal components (right) analyses of short-term dietary exposure treatments. All libraries were resampled to a constant depth of 4000 sequences. PERMANOVA based on dissimilarities was also conducted ( $R^2$  of 0.217,  $p$ -value of 0.001).

Supplemental Table 2. PERMANOVA based on Bray-Curtis dissimilarity measurements between the laboratory dog food diet and other diet treatments

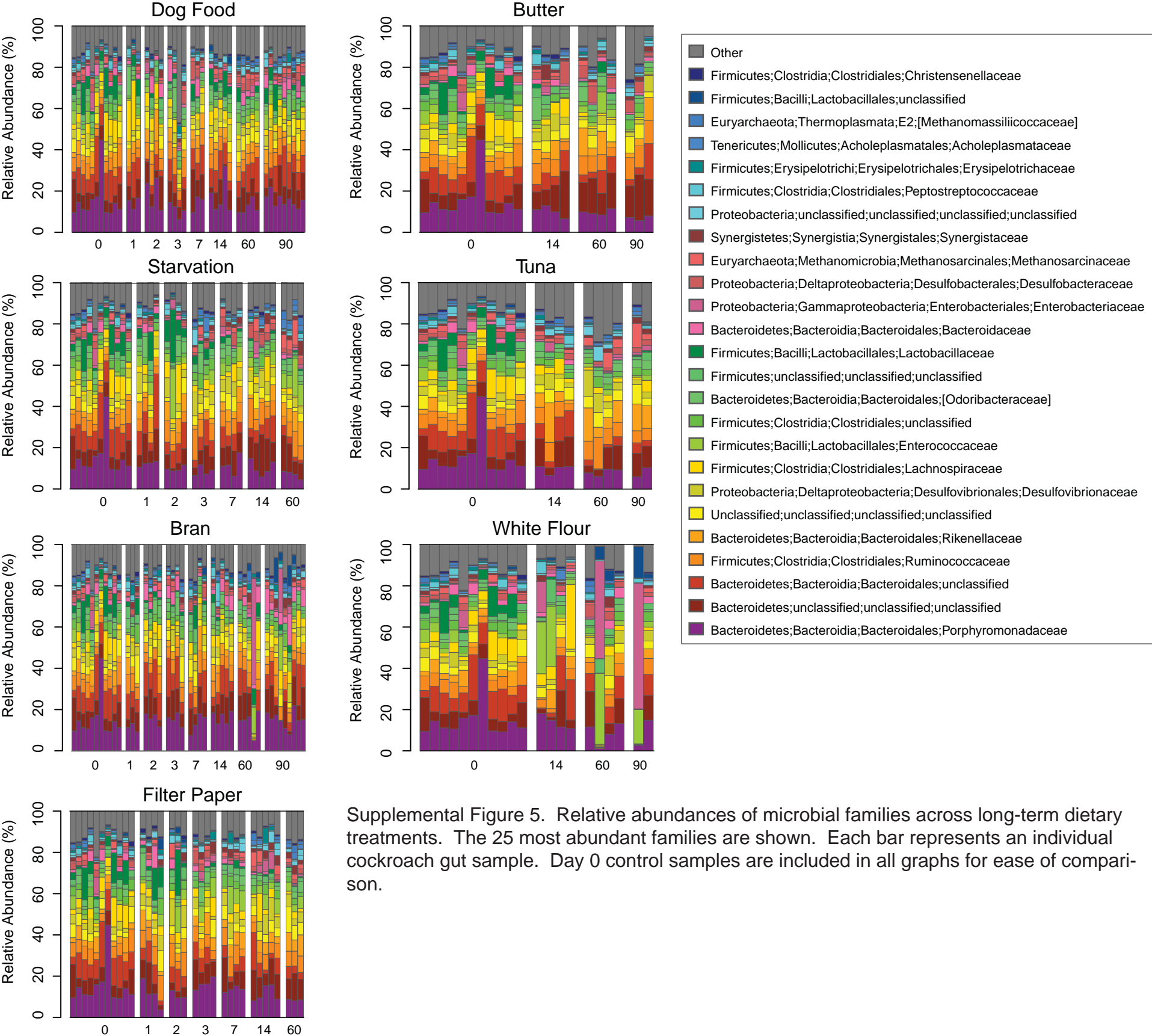
	<b>P-value</b>	<b>R<sup>2</sup></b>
Lab v Tuna	0.001	0.118
Lab v Butter	0.004	0.106
Lab v Whole Wheat Flour	0.002	0.117
Lab v White Flour	0.001	0.144
Lab v Honey	0.001	0.161
Lab v Mixed	0.001	0.232
Lab v Starvation	0.001	0.186



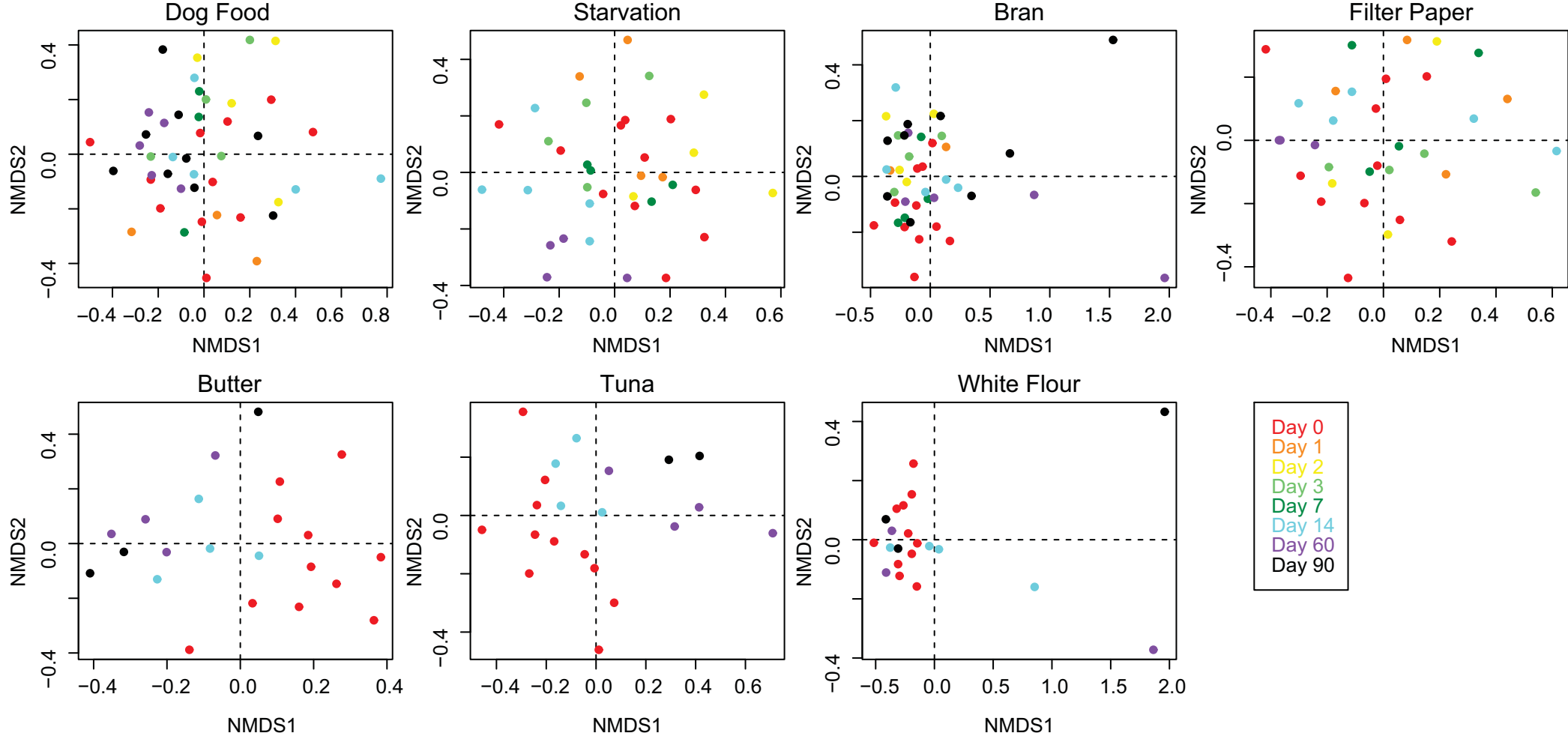
Supplemental Figure 3. Diversity analyses of short-term dietary treatments. Boxplots show Shannon diversity (top), weighted (middle), and unweighted (bottom) Bray-Curtis dissimilarities for each diet treatment. Dissimilarity analyses show within-treatment pairwise dissimilarities for each treatment as well as pairwise comparisons against dog food-fed control (laboratory) samples. All libraries were resampled to a constant depth of 4000 sequences. For each group, the bar delineates the mean, hinges represent the lower and upper quartiles, whiskers extend to the most extreme value which is no more than 1.5 times the interquartile range away from the box, and outliers are plotted if present.



Supplemental Figure 4. Relative abundances of microbial phyla across long-term dietary treatments. The ten most abundant phyla are shown. Each bar represents an individual cockroach gut sample. Day 0 control samples are included in all graphs for ease of comparison.

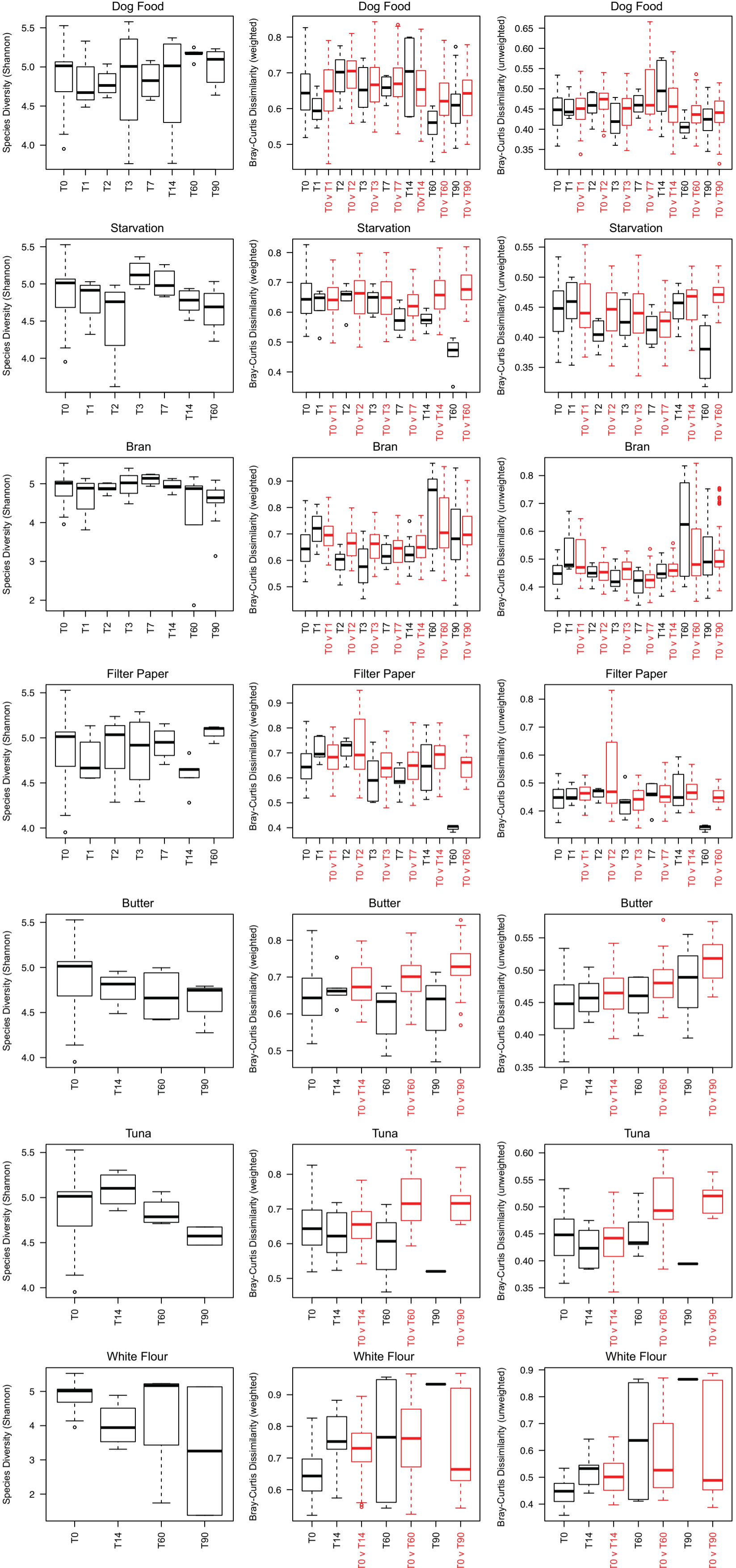


Supplemental Figure 5. Relative abundances of microbial families across long-term dietary treatments. The 25 most abundant families are shown. Each bar represents an individual cockroach gut sample. Day 0 control samples are included in all graphs for ease of comparison.



Supplemental Figure 6. Non-metric multidimensional scaling of long-term diet treatments. Each point represents an individual cockroach sample. Points are colored according to position in the time series. Time zero for all graphs are the same laboratory raised, dog food-fed cockroach samples. All libraries were resampled to 4000 sequences. PERMANOVA based on dissimilarities was also conducted: dog food ( $R^2$  of 0.192, p-value of 0.011), starvation ( $R^2$  of 0.261, p-value of 0.001), bran ( $R^2$  of 0.201, p-value of 0.007), filter paper ( $R^2$  of 0.231, p-value of 0.002), butter ( $R^2$  of 0.229, p-value of 0.001), tuna ( $R^2$  of 0.262, p-value of 0.001), and white flour ( $R^2$  of 0.176, p-value of 0.135).





Supplemental Figure 7. Diversity analyses of long-term dietary treatments. Boxplots show Shannon diversity (left), weighted (middle), and unweighted (right) Bray-Curtis dissimilarities for each diet treatment. Dissimilarity analyses show within-time point pairwise dissimilarities for each treatment as well as pairwise comparisons against time zero samples. All libraries were resampled to a constant depth of 4000 sequences. For each group, the bar delineates the mean, hinges represent the lower and upper quartiles, whiskers extend to the most extreme value which is no more than 1.5 times the interquartile range away from the box, and outliers are plotted if present.

Supplemental Table 3. Core gut microbiota found in cockroaches across all dietary treatment groups in the 14-day dietary shift.

k\_\_Archaea(100);p\_\_Euryarchaeota(100);c\_\_Methanocorpusculum(100);o\_\_Methanosarcinales(100);f\_\_Methanosarcinaceae(100);g\_\_Methanimicrococcus(100);s\_\_blatticola(100);  
k\_\_Archaea(100);p\_\_Euryarchaeota(100);c\_\_Thermoplasmata(100);o\_\_E2(100);f\_\_[Methanomassiliicoccaceae](100);g\_\_vadinCA11(100);unclassified(100);  
k\_\_Archaea(100);p\_\_Euryarchaeota(100);c\_\_Thermoplasmata(100);o\_\_E2(100);f\_\_[Methanomassiliicoccaceae](100);g\_\_vadinCA11(100);unclassified(100);.1  
k\_\_Bacteria(100);p\_\_Actinobacteria(100);c\_\_Coriobacteriia(100);o\_\_Coriobacteriales(100);f\_\_Coriobacteriaceae(100);g\_\_Enterococcus(100);s\_\_casseliflavus(100);  
k\_\_Bacteria(100);p\_\_Actinobacteria(100);c\_\_Coriobacteriia(100);o\_\_Coriobacteriales(100);f\_\_Coriobacteriaceae(100);g\_\_Enterococcus(100);s\_\_casseliflavus(100);.1  
k\_\_Bacteria(100);p\_\_Actinobacteria(100);c\_\_Coriobacteriia(100);o\_\_Coriobacteriales(100);f\_\_Coriobacteriaceae(100);g\_\_Enterococcus(100);s\_\_casseliflavus(100);.2  
k\_\_Bacteria(100);p\_\_Bacteroidetes(100);c\_\_Bacteroidia(100);o\_\_Bacteroidales(100);f\_\_[Odoribacteraceae](100);g\_\_Odoribacter(100);unclassified(100);  
k\_\_Bacteria(100);p\_\_Bacteroidetes(100);c\_\_Bacteroidia(100);o\_\_Bacteroidales(100);f\_\_[Odoribacteraceae](100);g\_\_Odoribacter(100);unclassified(100);.2  
k\_\_Bacteria(100);p\_\_Bacteroidetes(100);c\_\_Bacteroidia(100);o\_\_Bacteroidales(100);f\_\_Bacteroidaceae(100);g\_\_Bacteroides(100);unclassified(100);.5  
k\_\_Bacteria(100);p\_\_Bacteroidetes(100);c\_\_Bacteroidia(100);o\_\_Bacteroidales(100);f\_\_Porphyromonadaceae(100);g\_\_Candidatus\_Azobacteroides(100);unclassified(100);  
k\_\_Bacteria(100);p\_\_Bacteroidetes(100);c\_\_Bacteroidia(100);o\_\_Bacteroidales(100);f\_\_Porphyromonadaceae(100);g\_\_Candidatus\_Azobacteroides(100);unclassified(100);.1  
k\_\_Bacteria(100);p\_\_Bacteroidetes(100);c\_\_Bacteroidia(100);o\_\_Bacteroidales(100);f\_\_Porphyromonadaceae(100);g\_\_Candidatus\_Azobacteroides(92);unclassified(92);  
k\_\_Bacteria(100);p\_\_Bacteroidetes(100);c\_\_Bacteroidia(100);o\_\_Bacteroidales(100);f\_\_Porphyromonadaceae(100);g\_\_Dysgonomonas(100);unclassified(100);.1  
k\_\_Bacteria(100);p\_\_Bacteroidetes(100);c\_\_Bacteroidia(100);o\_\_Bacteroidales(100);f\_\_Porphyromonadaceae(100);g\_\_Paludibacter(100);unclassified(100);  
k\_\_Bacteria(100);p\_\_Bacteroidetes(100);c\_\_Bacteroidia(100);o\_\_Bacteroidales(100);f\_\_Porphyromonadaceae(100);g\_\_Parabacteroides(68);s\_\_gordonii(67);  
k\_\_Bacteria(100);p\_\_Bacteroidetes(100);c\_\_Bacteroidia(100);o\_\_Bacteroidales(100);f\_\_Porphyromonadaceae(100);g\_\_Parabacteroides(95);s\_\_gordonii(90);  
k\_\_Bacteria(100);p\_\_Bacteroidetes(100);c\_\_Bacteroidia(100);o\_\_Bacteroidales(100);f\_\_Porphyromonadaceae(100);g\_\_Tannerella(100);unclassified(100);  
k\_\_Bacteria(100);p\_\_Bacteroidetes(100);c\_\_Bacteroidia(100);o\_\_Bacteroidales(100);f\_\_Porphyromonadaceae(100);g\_\_Tannerella(100);unclassified(100);.1  
k\_\_Bacteria(100);p\_\_Bacteroidetes(100);c\_\_Bacteroidia(100);o\_\_Bacteroidales(100);f\_\_Porphyromonadaceae(100);g\_\_Tannerella(62);unclassified(62);  
k\_\_Bacteria(100);p\_\_Bacteroidetes(100);c\_\_Bacteroidia(100);o\_\_Bacteroidales(100);f\_\_Porphyromonadaceae(100);g\_\_Tannerella(93);unclassified(93);  
k\_\_Bacteria(100);p\_\_Bacteroidetes(100);c\_\_Bacteroidia(100);o\_\_Bacteroidales(100);f\_\_Porphyromonadaceae(100);unclassified(100);unclassified(100);  
k\_\_Bacteria(100);p\_\_Bacteroidetes(100);c\_\_Bacteroidia(100);o\_\_Bacteroidales(100);f\_\_Porphyromonadaceae(100);unclassified(100);unclassified(100);.10  
k\_\_Bacteria(100);p\_\_Bacteroidetes(100);c\_\_Bacteroidia(100);o\_\_Bacteroidales(100);f\_\_Porphyromonadaceae(100);unclassified(100);unclassified(100);.14  
k\_\_Bacteria(100);p\_\_Bacteroidetes(100);c\_\_Bacteroidia(100);o\_\_Bacteroidales(100);f\_\_Porphyromonadaceae(100);unclassified(100);unclassified(100);.15  
k\_\_Bacteria(100);p\_\_Bacteroidetes(100);c\_\_Bacteroidia(100);o\_\_Bacteroidales(100);f\_\_Porphyromonadaceae(100);unclassified(100);unclassified(100);.2  
k\_\_Bacteria(100);p\_\_Bacteroidetes(100);c\_\_Bacteroidia(100);o\_\_Bacteroidales(100);f\_\_Porphyromonadaceae(100);unclassified(100);unclassified(100);.3  
k\_\_Bacteria(100);p\_\_Bacteroidetes(100);c\_\_Bacteroidia(100);o\_\_Bacteroidales(100);f\_\_Porphyromonadaceae(100);unclassified(100);unclassified(100);.4  
k\_\_Bacteria(100);p\_\_Bacteroidetes(100);c\_\_Bacteroidia(100);o\_\_Bacteroidales(100);f\_\_Porphyromonadaceae(100);unclassified(100);unclassified(100);.5  
k\_\_Bacteria(100);p\_\_Bacteroidetes(100);c\_\_Bacteroidia(100);o\_\_Bacteroidales(100);f\_\_Porphyromonadaceae(100);unclassified(100);unclassified(100);.8  
k\_\_Bacteria(100);p\_\_Bacteroidetes(100);c\_\_Bacteroidia(100);o\_\_Bacteroidales(100);f\_\_Porphyromonadaceae(100);unclassified(98);unclassified(98);  
k\_\_Bacteria(100);p\_\_Bacteroidetes(100);c\_\_Bacteroidia(100);o\_\_Bacteroidales(100);f\_\_Porphyromonadaceae(100);unclassified(99);unclassified(99);











k\_\_Bacteria(100);unclassified(100);unclassified(100);unclassified(100);unclassified(100);unclassified(100);unclassified(100);.8  
k\_\_Bacteria(100);unclassified(100);unclassified(100);unclassified(100);unclassified(100);unclassified(100);unclassified(100);.81  
k\_\_Bacteria(100);unclassified(100);unclassified(100);unclassified(100);unclassified(100);unclassified(100);unclassified(100);.9  
k\_\_Bacteria(100);unclassified(100);unclassified(100);unclassified(100);unclassified(100);unclassified(100);unclassified(100);.91  
k\_\_Bacteria(100);unclassified(100);unclassified(100);unclassified(100);unclassified(100);unclassified(100);unclassified(100);.93

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Supplemental Table 4. Core gut microbiota found in all human samples.

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k\_\_Bacteria(100);p\_\_Bacteroidetes(100);c\_\_Bacteroidia(100);o\_\_Bacteroidales(100);f\_\_Bacteroidaceae(100);g\_\_Bacteroides(100);s\_\_ovatus(77);

k\_\_Bacteria(100);p\_\_Bacteroidetes(100);c\_\_Bacteroidia(100);o\_\_Bacteroidales(100);f\_\_Bacteroidaceae(100);g\_\_Bacteroides(100);s\_\_uniformis(95);

k\_\_Bacteria(100);p\_\_Bacteroidetes(100);c\_\_Bacteroidia(100);o\_\_Bacteroidales(100);f\_\_Bacteroidaceae(100);g\_\_Bacteroides(100);unclassified(100);

k\_\_Bacteria(100);p\_\_Firmicutes(100);c\_\_Clostridia(100);o\_\_Clostridiales(100);f\_\_Lachnospiraceae(100);g\_\_Roseburia(99);s\_\_faecis(89);

k\_\_Bacteria(100);p\_\_Firmicutes(100);c\_\_Clostridia(100);o\_\_Clostridiales(100);f\_\_Ruminococcaceae(100);g\_\_Faecalibacterium(100);s\_\_prausnitzii(100);

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Supplemental Table 5. Core gut microbiota found in laboratory-raised cockroaches, initial wild-caught cockroaches, and wild-caught cockroaches after 14 days in laboratory conditions.

k\_\_Archaea(100);p\_\_Euryarchaeota(100);c\_\_Methanomicrobia(100);o\_\_Methanosarcinales(100);f\_\_Methanosarcinaceae(100);g\_\_Methanimicrococcus(100);s\_\_blatticola(100);\*

k\_\_Archaea(100);p\_\_Euryarchaeota(100);c\_\_Thermoplasmata(100);o\_\_E2(100);f\_\_[Methanomassiliicoccaceae](100);g\_\_vadinCA11(100);unclassified(100);.1\*

k\_\_Bacteria(100);p\_\_Actinobacteria(100);c\_\_Coriobacteriia(100);o\_\_Coriobacteriales(100);f\_\_Coriobacteriaceae(100);g\_\_Enterococcus(100);s\_\_casseliflavus(100);.1\*

k\_\_Bacteria(100);p\_\_Actinobacteria(100);c\_\_Coriobacteriia(100);o\_\_Coriobacteriales(100);f\_\_Coriobacteriaceae(100);g\_\_Enterococcus(100);s\_\_casseliflavus(100);\*

k\_\_Bacteria(100);p\_\_Actinobacteria(100);c\_\_Coriobacteriia(100);o\_\_Coriobacteriales(100);f\_\_Coriobacteriaceae(100);unclassified(100);unclassified(100);

k\_\_Bacteria(100);p\_\_Bacteroidetes(100);c\_\_[Saprosirae](100);o\_\_[Saprosirales](100);f\_\_Chitinophagaceae(100);unclassified(100);unclassified(100);

k\_\_Bacteria(100);p\_\_Bacteroidetes(100);c\_\_Bacteroidia(100);o\_\_Bacteroidales(100);f\_\_[Odoribacteraceae](100);g\_\_Odoribacter(100);unclassified(100);.1

k\_\_Bacteria(100);p\_\_Bacteroidetes(100);c\_\_Bacteroidia(100);o\_\_Bacteroidales(100);f\_\_[Odoribacteraceae](100);g\_\_Odoribacter(100);unclassified(100);\*

k\_\_Bacteria(100);p\_\_Bacteroidetes(100);c\_\_Bacteroidia(100);o\_\_Bacteroidales(100);f\_\_[Odoribacteraceae](100);unclassified(100);unclassified(100);

k\_\_Bacteria(100);p\_\_Bacteroidetes(100);c\_\_Bacteroidia(100);o\_\_Bacteroidales(100);f\_\_Bacteroidaceae(99);g\_\_Bacteroides(99);unclassified(99);

k\_\_Bacteria(100);p\_\_Bacteroidetes(100);c\_\_Bacteroidia(100);o\_\_Bacteroidales(100);f\_\_Porphyromonadaceae(100);g\_\_Candidatus\_Azobacteroides(100);unclassified(100);.1\*

k\_\_Bacteria(100);p\_\_Bacteroidetes(100);c\_\_Bacteroidia(100);o\_\_Bacteroidales(100);f\_\_Porphyromonadaceae(100);g\_\_Candidatus\_Azobacteroides(100);unclassified(100);.2

k\_\_Bacteria(100);p\_\_Bacteroidetes(100);c\_\_Bacteroidia(100);o\_\_Bacteroidales(100);f\_\_Porphyromonadaceae(100);g\_\_Candidatus\_Azobacteroides(100);unclassified(100);.3

k\_\_Bacteria(100);p\_\_Bacteroidetes(100);c\_\_Bacteroidia(100);o\_\_Bacteroidales(100);f\_\_Porphyromonadaceae(100);g\_\_Candidatus\_Azobacteroides(100);unclassified(100);.4

k\_\_Bacteria(100);p\_\_Bacteroidetes(100);c\_\_Bacteroidia(100);o\_\_Bacteroidales(100);f\_\_Porphyromonadaceae(100);g\_\_Candidatus\_Azobacteroides(100);unclassified(100);.7

k\_\_Bacteria(100);p\_\_Bacteroidetes(100);c\_\_Bacteroidia(100);o\_\_Bacteroidales(100);f\_\_Porphyromonadaceae(100);g\_\_Candidatus\_Azobacteroides(100);unclassified(100);\*

k\_\_Bacteria(100);p\_\_Bacteroidetes(100);c\_\_Bacteroidia(100);o\_\_Bacteroidales(100);f\_\_Porphyromonadaceae(100);g\_\_Dysgonomonas(100);unclassified(100);

k\_\_Bacteria(100);p\_\_Bacteroidetes(100);c\_\_Bacteroidia(100);o\_\_Bacteroidales(100);f\_\_Porphyromonadaceae(100);g\_\_Paludibacter(100);unclassified(100);.3

k\_\_Bacteria(100);p\_\_Bacteroidetes(100);c\_\_Bacteroidia(100);o\_\_Bacteroidales(100);f\_\_Porphyromonadaceae(100);g\_\_Parabacteroides(55);unclassified(55);

k\_\_Bacteria(100);p\_\_Bacteroidetes(100);c\_\_Bacteroidia(100);o\_\_Bacteroidales(100);f\_\_Porphyromonadaceae(100);g\_\_Parabacteroides(89);unclassified(89);

k\_\_Bacteria(100);p\_\_Bacteroidetes(100);c\_\_Bacteroidia(100);o\_\_Bacteroidales(100);f\_\_Porphyromonadaceae(100);g\_\_Tannerella(100);unclassified(100);.2

k\_\_Bacteria(100);p\_\_Bacteroidetes(100);c\_\_Bacteroidia(100);o\_\_Bacteroidales(100);f\_\_Porphyromonadaceae(100);g\_\_Tannerella(100);unclassified(100);\*

k\_\_Bacteria(100);p\_\_Bacteroidetes(100);c\_\_Bacteroidia(100);o\_\_Bacteroidales(100);f\_\_Porphyromonadaceae(100);unclassified(100);unclassified(100);.1

k\_\_Bacteria(100);p\_\_Bacteroidetes(100);c\_\_Bacteroidia(100);o\_\_Bacteroidales(100);f\_\_Porphyromonadaceae(100);unclassified(100);unclassified(100);.2\*

k\_\_Bacteria(100);p\_\_Bacteroidetes(100);c\_\_Bacteroidia(100);o\_\_Bacteroidales(100);f\_\_Porphyromonadaceae(100);unclassified(100);unclassified(100);\*

k\_\_Bacteria(100);p\_\_Bacteroidetes(100);c\_\_Bacteroidia(100);o\_\_Bacteroidales(100);f\_\_Porphyromonadaceae(100);unclassified(51);unclassified(51);

k\_\_Bacteria(100);p\_\_Bacteroidetes(100);c\_\_Bacteroidia(100);o\_\_Bacteroidales(100);f\_\_Porphyromonadaceae(100);unclassified(65);unclassified(65);

k\_\_Bacteria(100);p\_\_Bacteroidetes(100);c\_\_Bacteroidia(100);o\_\_Bacteroidales(100);f\_\_Porphyromonadaceae(97);g\_\_Candidatus\_Azobacteroides(90);unclassified(90);

k\_\_Bacteria(100);p\_\_Bacteroidetes(100);c\_\_Bacteroidia(100);o\_\_Bacteroidales(100);f\_\_Rikenellaceae(100);unclassified(100);unclassified(100);.1\*

k\_\_Bacteria(100);p\_\_Bacteroidetes(100);c\_\_Bacteroidia(100);o\_\_Bacteroidales(100);f\_\_Rikenellaceae(100);unclassified(100);unclassified(100);.15

k\_\_Bacteria(100);p\_\_Bacteroidetes(100);c\_\_Bacteroidia(100);o\_\_Bacteroidales(100);f\_\_Rikenellaceae(100);unclassified(100);unclassified(100);.2

k\_\_Bacteria(100);p\_\_Bacteroidetes(100);c\_\_Bacteroidia(100);o\_\_Bacteroidales(100);f\_\_Rikenellaceae(100);unclassified(100);unclassified(100);.4

k\_\_Bacteria(100);p\_\_Bacteroidetes(100);c\_\_Bacteroidia(100);o\_\_Bacteroidales(100);f\_\_Rikenellaceae(100);unclassified(100);unclassified(100);.5

k\_\_Bacteria(100);p\_\_Bacteroidetes(100);c\_\_Bacteroidia(100);o\_\_Bacteroidales(100);f\_\_Rikenellaceae(100);unclassified(100);unclassified(100);.6

k\_\_Bacteria(100);p\_\_Bacteroidetes(100);c\_\_Bacteroidia(100);o\_\_Bacteroidales(100);f\_\_Rikenellaceae(97);unclassified(97);unclassified(97);

k\_\_Bacteria(100);p\_\_Bacteroidetes(100);c\_\_Bacteroidia(100);o\_\_Bacteroidales(100);f\_\_SB-1(100);unclassified(100);unclassified(100);

k\_\_Bacteria(100);p\_\_Bacteroidetes(100);c\_\_Bacteroidia(100);o\_\_Bacteroidales(100);unclassified(100);unclassified(100);unclassified(100);.10

k\_\_Bacteria(100);p\_\_Bacteroidetes(100);c\_\_Bacteroidia(100);o\_\_Bacteroidales(100);unclassified(100);unclassified(100);unclassified(100);.19

k\_\_Bacteria(100);p\_\_Bacteroidetes(100);c\_\_Bacteroidia(100);o\_\_Bacteroidales(100);unclassified(100);unclassified(100);unclassified(100);.5







k\_\_Bacteria(100);p\_\_Proteobacteria(100);c\_\_Deltaproteobacteria(100);o\_\_Desulfovibrionales(100);unclassified(96);unclassified(96);unclassified(96);  
k\_\_Bacteria(100);p\_\_Proteobacteria(100);c\_\_Deltaproteobacteria(100);o\_\_Desulfovibrionales(100);unclassified(97);unclassified(97);unclassified(97);  
k\_\_Bacteria(100);p\_\_Proteobacteria(100);c\_\_Deltaproteobacteria(100);unclassified(100);unclassified(100);unclassified(100);unclassified(100);.1  
k\_\_Bacteria(100);p\_\_Proteobacteria(100);c\_\_Gammaproteobacteria(100);o\_\_Enterobacteriales(100);f\_\_Enterobacteriaceae(100);unclassified(92);unclassified(92);  
k\_\_Bacteria(100);p\_\_Proteobacteria(100);unclassified(100);unclassified(100);unclassified(100);unclassified(100);unclassified(100);.1\*  
k\_\_Bacteria(100);p\_\_Proteobacteria(100);unclassified(100);unclassified(100);unclassified(100);unclassified(100);unclassified(100);.2\*  
k\_\_Bacteria(100);p\_\_Proteobacteria(100);unclassified(100);unclassified(100);unclassified(100);unclassified(100);unclassified(100);.24  
k\_\_Bacteria(100);p\_\_Proteobacteria(100);unclassified(100);unclassified(100);unclassified(100);unclassified(100);unclassified(100);.3  
k\_\_Bacteria(100);p\_\_Proteobacteria(100);unclassified(100);unclassified(100);unclassified(100);unclassified(100);unclassified(100);.5\*  
k\_\_Bacteria(100);p\_\_Proteobacteria(100);unclassified(100);unclassified(100);unclassified(100);unclassified(100);unclassified(100);.6  
k\_\_Bacteria(100);p\_\_Proteobacteria(100);unclassified(100);unclassified(100);unclassified(100);unclassified(100);unclassified(100);\*  
k\_\_Bacteria(100);p\_\_Spirochaetes(100);c\_\_[Leptospirae](100);o\_\_[Leptospirales](100);f\_\_Sediment-4(100);g\_\_SJA-88(100);unclassified(100);  
k\_\_Bacteria(100);p\_\_Spirochaetes(100);c\_\_Spirochaetes(100);o\_\_Spirochaetales(100);f\_\_Spirochaetaceae(100);g\_\_Treponema(100);unclassified(100);  
k\_\_Bacteria(100);p\_\_Synergistetes(100);c\_\_Synergistia(100);o\_\_Synergistales(100);f\_\_Dethiosulfovibrionaceae(100);g\_\_TG5(100);unclassified(100);.1  
k\_\_Bacteria(100);p\_\_Synergistetes(100);c\_\_Synergistia(100);o\_\_Synergistales(100);f\_\_Synergistaceae(100);g\_\_Candidatus\_Tammella(100);unclassified(100);  
k\_\_Bacteria(100);p\_\_Synergistetes(100);c\_\_Synergistia(100);o\_\_Synergistales(100);f\_\_Synergistaceae(100);g\_\_Candidatus\_Tammella(100);unclassified(100);.3  
k\_\_Bacteria(100);p\_\_Synergistetes(100);c\_\_Synergistia(100);o\_\_Synergistales(100);f\_\_Synergistaceae(100);g\_\_Candidatus\_Tammella(100);unclassified(100);.4  
k\_\_Bacteria(100);p\_\_Synergistetes(100);c\_\_Synergistia(100);o\_\_Synergistales(100);f\_\_Synergistaceae(100);unclassified(100);unclassified(100);  
k\_\_Bacteria(100);p\_\_Tenericutes(100);c\_\_Mollicutes(100);o\_\_Acholeplasmatales(100);f\_\_Acholeplasmataceae(100);g\_\_Acholeplasma(100);unclassified(100);  
k\_\_Bacteria(100);p\_\_Tenericutes(100);c\_\_Mollicutes(100);o\_\_Acholeplasmatales(100);f\_\_Acholeplasmataceae(100);g\_\_Acholeplasma(100);unclassified(100);.1\*  
k\_\_Bacteria(100);p\_\_Tenericutes(100);c\_\_Mollicutes(100);o\_\_Acholeplasmatales(100);f\_\_Acholeplasmataceae(100);g\_\_Acholeplasma(100);unclassified(100);.2  
k\_\_Bacteria(100);p\_\_Tenericutes(100);c\_\_Mollicutes(100);o\_\_RsaHF231(100);unclassified(100);unclassified(100);unclassified(100);\*  
k\_\_Bacteria(100);p\_\_Verrucomicrobia(100);c\_\_Opitutae(100);o\_\_Opitutaes(100);f\_\_Opitutaceae(100);g\_\_Opitutus(100);unclassified(100);  
k\_\_Bacteria(100);p\_\_Verrucomicrobia(100);c\_\_Verrucomicrobiae(100);o\_\_Verrucomicrobiales(100);f\_\_Verrucomicrobiaceae(100);unclassified(100);unclassified(100);  
k\_\_Bacteria(100);unclassified(100);unclassified(100);unclassified(100);unclassified(100);unclassified(100);unclassified(100);.1\*  
k\_\_Bacteria(100);unclassified(100);unclassified(100);unclassified(100);unclassified(100);unclassified(100);unclassified(100);.11  
k\_\_Bacteria(100);unclassified(100);unclassified(100);unclassified(100);unclassified(100);unclassified(100);unclassified(100);.13\*  
k\_\_Bacteria(100);unclassified(100);unclassified(100);unclassified(100);unclassified(100);unclassified(100);unclassified(100);.14  
k\_\_Bacteria(100);unclassified(100);unclassified(100);unclassified(100);unclassified(100);unclassified(100);unclassified(100);.19\*  
k\_\_Bacteria(100);unclassified(100);unclassified(100);unclassified(100);unclassified(100);unclassified(100);unclassified(100);.2\*  
k\_\_Bacteria(100);unclassified(100);unclassified(100);unclassified(100);unclassified(100);unclassified(100);unclassified(100);.3\*  
k\_\_Bacteria(100);unclassified(100);unclassified(100);unclassified(100);unclassified(100);unclassified(100);unclassified(100);.39\*  
k\_\_Bacteria(100);unclassified(100);unclassified(100);unclassified(100);unclassified(100);unclassified(100);unclassified(100);.40  
k\_\_Bacteria(100);unclassified(100);unclassified(100);unclassified(100);unclassified(100);unclassified(100);unclassified(100);.5\*  
k\_\_Bacteria(100);unclassified(100);unclassified(100);unclassified(100);unclassified(100);unclassified(100);unclassified(100);.7\*  
k\_\_Bacteria(100);unclassified(100);unclassified(100);unclassified(100);unclassified(100);unclassified(100);unclassified(100);.87  
k\_\_Bacteria(100);unclassified(100);unclassified(100);unclassified(100);unclassified(100);unclassified(100);unclassified(100);\*

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\*Also found in all cockroaches in the 14-day dietary shift, listed in SI Table 2.