

1 Table S1: N-cycle genes included in GeoChip 4.0

Gene	N-Cycle process	Number of Probes	
		Archaea	Bacteria
<i>gdh</i>	Ammonification	5	29
<i>ureC</i>	Ammonification	9	384
<i>nasA</i>	Assimilatory N reduction	3	89
<i>NiR</i>	Assimilatory N reduction	19	53
<i>nirA</i>	Assimilatory N reduction	5	18
<i>NirB</i>	Assimilatory N reduction	-	26
<i>narG</i>	Denitrification	3	657
<i>nirK</i>	Denitrification	4	259
<i>nirS</i>	Denitrification	-	226
<i>norB</i>	Denitrification	1	58
<i>nosZ</i>	Denitrification	1	166
<i>napA</i>	Dissimilatory N reduction	-	122
<i>nrfA</i>	Dissimilatory N reduction	-	128
<i>hao</i>	Nitrification	-	17
<i>nifH</i>	Nitrogen fixation	23	571

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4 Table S2: Abundance, Richness and Diversity results

	Ambient	Experimental N Deposition	P-value
Archaea			
Abundance	6.7 ± 0.70	5.7 ± 1.3	0.02
Site A	2.3 ± 0.19	1.6 ± 0.38	< 0.01
Site B	2.6 ± 0.26	1.5 ± 0.13	< 0.01
Site C	2.8 ± 0.04	3.0 ± 0.06	<i>ns</i>
Site D	3.0 ± 0.10	3.2 ± 0.17	<i>ns</i>
Functional Richness	0.98 ± 0.03	0.89 ± 0.07	0.04
Site A	0.22 ± 0.01	0.17 ± 0.03	< 0.01
Site B	0.24 ± 0.02	0.17 ± 0.01	< 0.01
Site C	0.25 ± 0.00	0.27 ± 0.00	<i>ns</i>
Site D	0.26 ± 0.01	0.28 ± 0.01	0.05
Shannon Index	3.9 ± 0.03	3.7 ± 0.10	0.04
Site A	3.8 ± 0.07	3.4 ± 0.21	0.01
Site B	3.8 ± 0.21	3.8 ± 0.09	< 0.01
Site C	3.9 ± 0.02	4.0 ± 0.03	<i>ns</i>
Site D	4.0 ± 0.01	4.1 ± 0.05	<i>ns</i>
Bacteria			
Abundance	4.0 ± 0.32	3.5 ± 0.70	0.02
Site A	3.7 ± 0.17	2.5 ± 0.50	0.01
Site B	3.5 ± 0.31	2.3 ± 0.21	< 0.01
Site C	4.2 ± 0.14	4.3 ± 0.07	<i>ns</i>
Site D	4.7 ± 0.12	4.7 ± 0.35	<i>ns</i>
Functional Richness	0.97 ± 0.03	0.88 ± 0.06	0.02
Site A	0.90 ± 0.03	0.71 ± 0.09	0.01
Site B	0.89 ± 0.05	0.68 ± 0.04	< 0.01
Site C	0.99 ± 0.03	1.0 ± 0.01	<i>ns</i>
Site D	1.1 ± 0.02	1.1 ± 0.07	<i>ns</i>
Shannon Index	7.6 ± 0.04	7.4 ± 0.11	0.02
Site A	7.5 ± 0.03	7.1 ± 0.23	0.01
Site B	7.5 ± 0.10	7.1 ± 0.08	< 0.01
Site C	7.6 ± 0.03	7.7 ± 0.03	<i>ns</i>
Site D	7.7 ± 0.03	7.7 ± 0.06	<i>ns</i>

5 Abundance values are normalized signal intensity and functional richness values are
6 arcsine transformed proportion of probes detected (see Materials and Methods). Mean
7 ± SE of overall and pair-wise comparisons are included. P-values from 2-way ANOVA
8 are shown for the effect of experimental N deposition. *ns* – results are non-significant
9 (P > 0.15)

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