

Table S5. Distribution of soil genera commonly associated with nitrogen cycling activities and correlation with average soil relative humidity.

Genus	Phylum/ Subphylum	Range in relative abundance (%)	Spearman's rank correlation coefficient (r_s) ^a	<i>P</i> - value	<i>q</i> - value	Functional Association
<i>Nitrospira</i>	Nitrospirae	0 – 0.1	0.805	0.0003	0.002	NO ₂ oxidation
<i>Bradyrhizobium</i>	α-Proteobacteria	0 – 1.2%	0.787	0.0005	0.002	N ₂ fixation
<i>Nitrososphaera</i>	Crenarchaeota	0 - 2.6	0.757	0.002	0.006	NH ₃ oxidation
<i>Mesorhizobium</i>	α-Proteobacteria	0 – 0.15	0.707	0.003	0.007	N ₂ fixation
<i>Frankia</i>	Actinobacteria	0 – 0.1	0.376	0.167	0.301	N ₂ fixation
<i>Rhizobium</i>	α-Proteobacteria	0 – 0.09	0.311	0.259	0.389	N ₂ fixation
<i>Azospirillum</i>	α-Proteobacteria	0 – 0.007	0.266	0.339	0.432	N ₂ fixation
<i>Nitrosovibrio</i>	β-Proteobacteria	0 – 0.04	0.243	0.384	0.432	NH ₃ oxidation
<i>Sinorhizobium</i>	α-Proteobacteria	0 – 0.04	0.128	0.649	0.649	N ₂ fixation
<i>Nitrobacter</i>	α-Proteobacteria	ND				NO ₂ oxidation
<i>Nitrosomonas</i>	β-Proteobacteria	ND				NH ₃ oxidation
<i>Nitrosospira</i>	β-Proteobacteria	ND				NH ₃ oxidation

a: Spearman's rank correlation of soil genera with average soil relative humidity.

q-value: false discovery rate (FDR) corrected *p* – values; ND, Taxa not detected.