

**Table S1.** The method for data transformation for each variable in this study.

Variable	Transformed method
pH	No transformed
NH <sub>4</sub> <sup>+</sup> -N	BoxCox
NO <sub>3</sub> <sup>-</sup> -N	BoxCox
TDN	No transformed
TN	No transformed
DOC	BoxCox
SOC	No transformed
AG	BoxCox
BG	sqrt
BX	sqrt
CBH	BoxCox
LA	BoxCox
NAG	BoxCox
Urease	No transformed
MBC	No transformed
MBN	sqrt
Microbial C: N	BoxCox
N <sub>2</sub> O	BoxCox
CH <sub>4</sub>	BoxCox
CO <sub>2</sub>	BoxCox