

Table S1. The interpretation rate for each environmental variable obtained from the results of redundancy analysis (RDA) at 0–50 and 50–100 cm soil depths in the two months

| Month | Soil depth | Variables | Explains (%) | P-value |
|---------|------------|-------------------------------|--------------|---------|
| May | 0-50 cm | SO ₄ ²⁻ | 37.8 | <0.001 |
| | | NO ₂ ⁻ | 32.65 | 0.063 |
| | | Temperature | 26.53 | <0.001 |
| | | Fe ³⁺ | 3.06 | <0.001 |
| | 0-100 cm | pH | 47.24 | 0.180 |
| | | Bulk density | 27.72 | 0.101 |
| | | NO ₂ ⁻ | 23.55 | 0.130 |
| | | NH ₄ ⁺ | 0.15 | 0.003 |
| October | 0-50 cm | pH | 84.50 | <0.001 |
| | | Salinity | 7.75 | <0.001 |
| | | NO ₃ ⁻ | 5.10 | 0.120 |
| | | NH ₄ ⁺ | 1.32 | 0.026 |
| | | Eh | 0.19 | 0.003 |
| | 0-100 cm | pH | 65.92 | 0.001 |
| | | Bulk density | 21.46 | 0.003 |
| | | NO ₃ ⁻ | 6.57 | 0.174 |
| | | Temperature | 5.96 | 0.001 |
| | | Eh | 0.07 | 0.111 |