

## **Supplementary Material**

Supplementary figure legends

Supplementary figures S1-S9

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### Figure S1

Temperature in 5 different depths (2.5 cm, 5 cm, 10 cm, 30 cm, 60 cm) over 170 days of the drained period 2009-2010 at site A in Pantanal wetland soil.

### Figure S2

Soil  $\text{NH}_4^+$  profiles from level 1 to level 3 (left to right) at site A, 2008 (a, b, c), site B (d, e, f), site A, 2009 (g, h, i), site C (j, k, l).

### Figure S3

Soil  $\text{NO}_3^-$  profiles from level 1 to level 3 (left to right) at site A, 2008 (a, b, c), site B (d, e, f), site A, 2009 (g, h, i), site C (j, k, l).

### Figure S4

Soil pH profiles from level 1 to level 3 (left to right) at site A, 2008 (a, b, c), site B (d, e, f), site A, 2009 (g, h, i), site C (j, k, l).

### Figure S5

*In situ* pH gradient from site A (green circles) and site C (red circles).

### Figure S6

$\text{NH}_4^+$  and  $\text{NO}_3^-$  in the water phase in (a) Rio Paraguai and Rio Presa and in (b) water bodies near site A, B and C.

**Figure S7**

Soil  $\text{NO}_3^-$  and pH from screening field campaign. (a)  $\text{NO}_3^-$  content in soil from 10 sites and (b) pH from 9 sites. Note discontinuous scale on (a).

**Figure S8**

Total nitrogen and carbon in wetland soil. (a) total nitrogen at site A, (b) total nitrogen at site B, (c) total carbon at site A, (d) total carbon at site B.

**Figure S9**

*In situ* flux of  $\text{CO}_2$  from site A and B (2008) (a), and site A and C (2009) (b). Flux rates from site A are level 1 ( $\blacktriangle$ ) and level 2 ( $\blacktriangle$ ), from site B and C are level 1 ( $\bullet$ ) and level 2 ( $\bullet$ ). Symbols indicate mean  $\pm$  S.E. (n=5).

## Supplementary figures

Figure S1

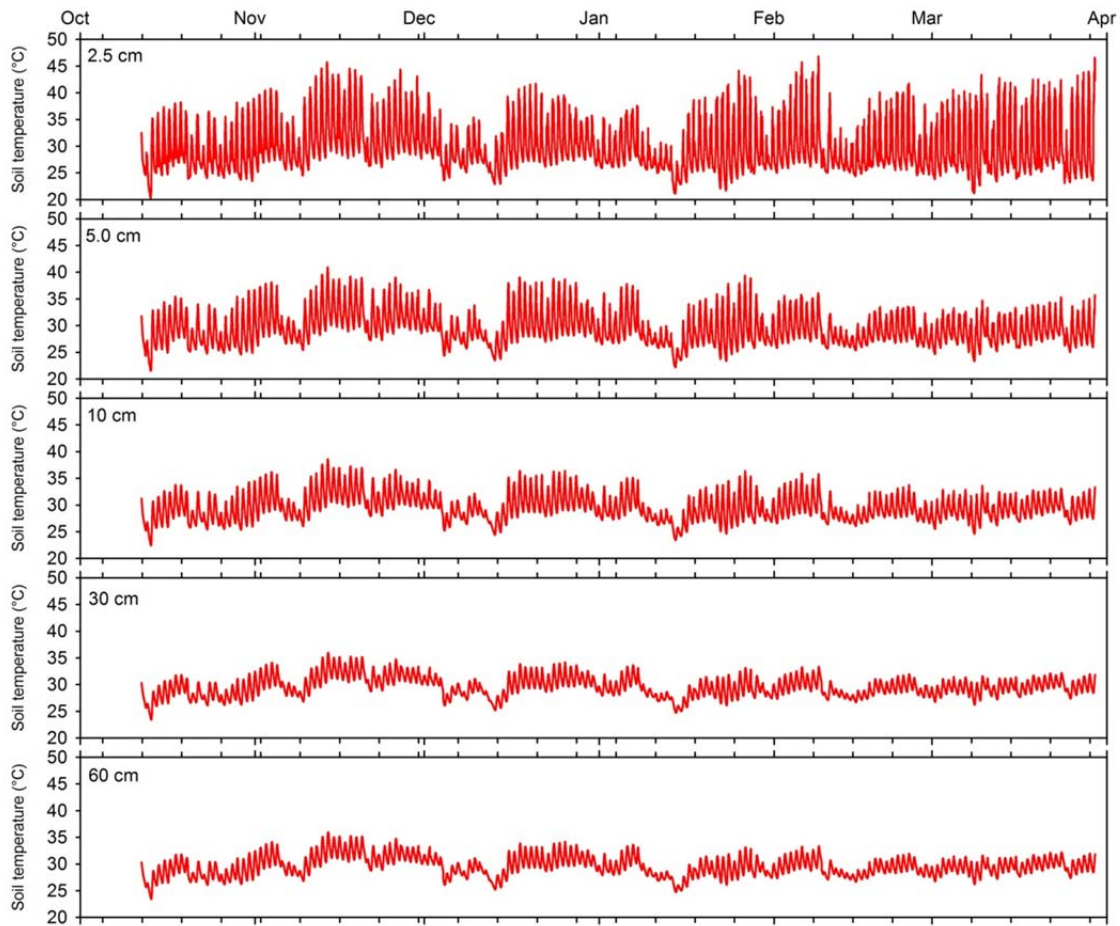


Figure S2

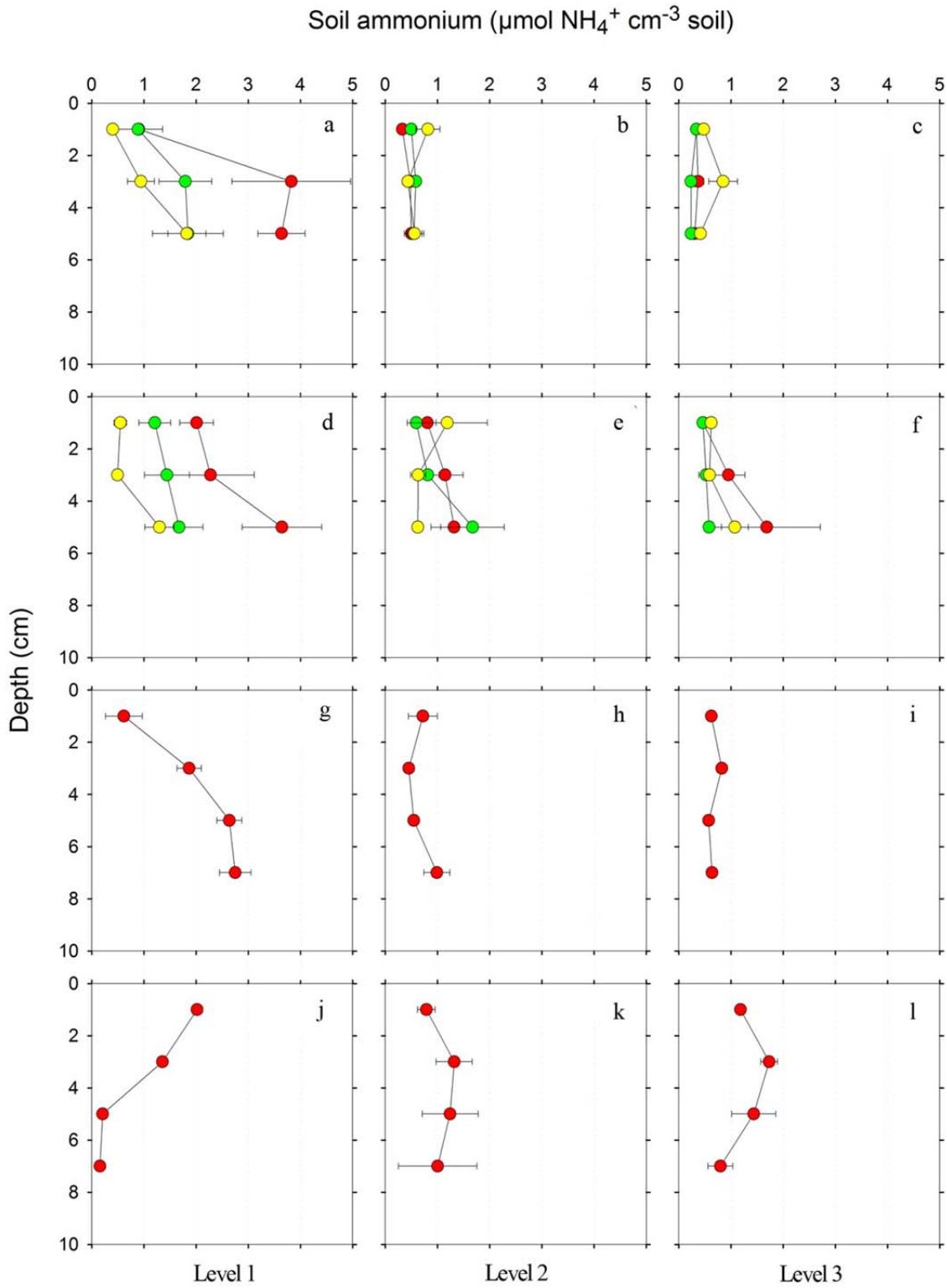


Figure S3

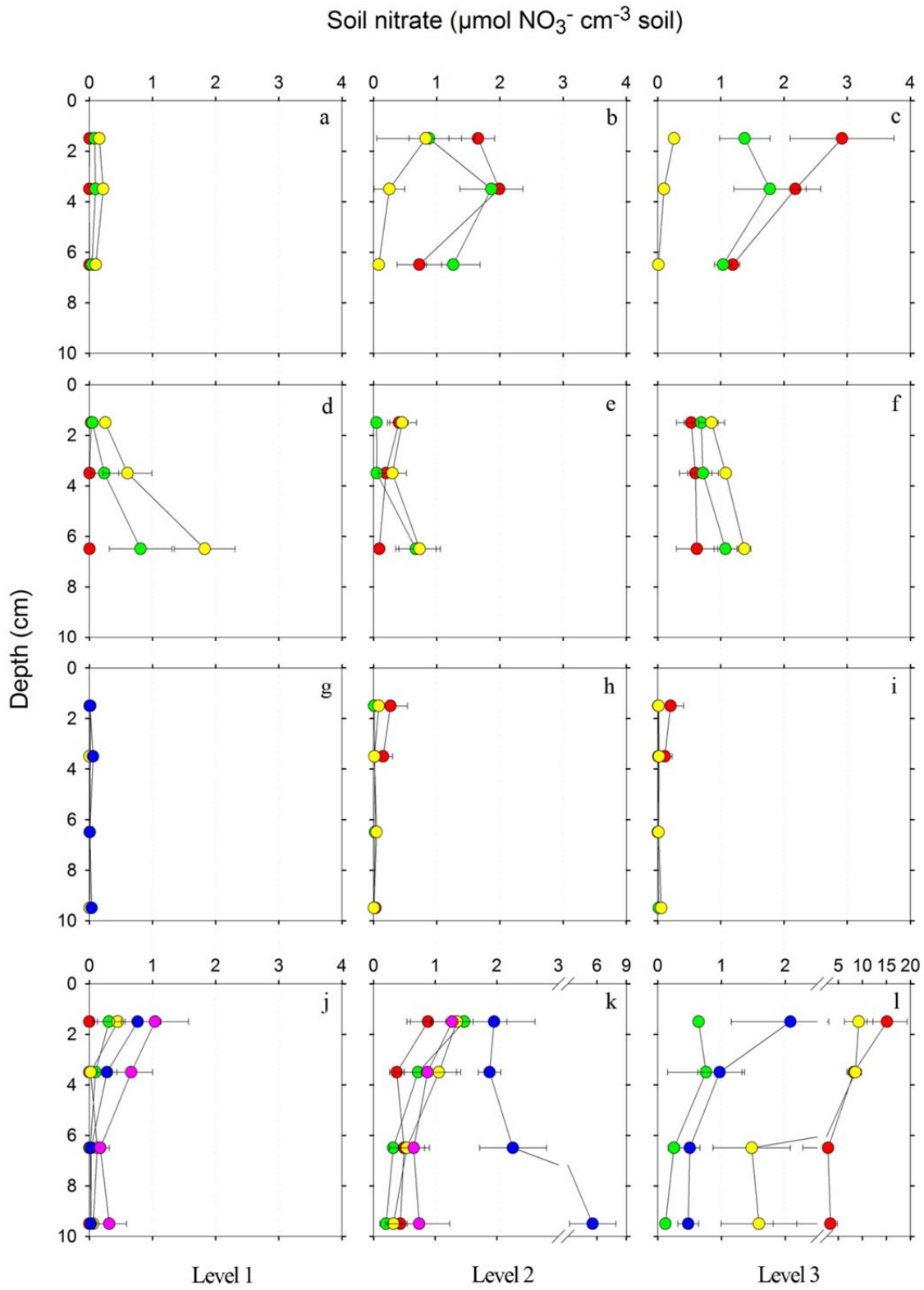


Figure S4

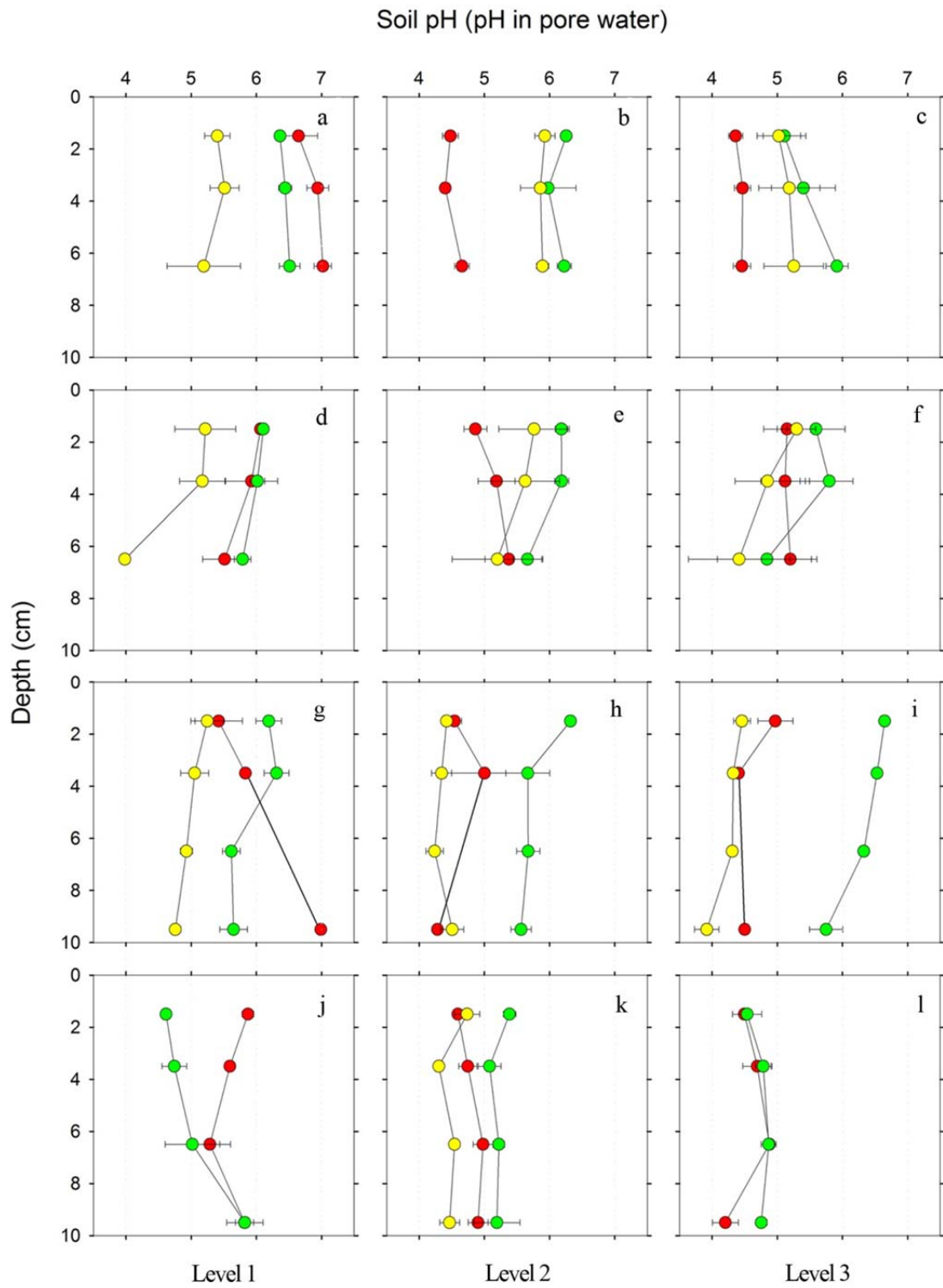
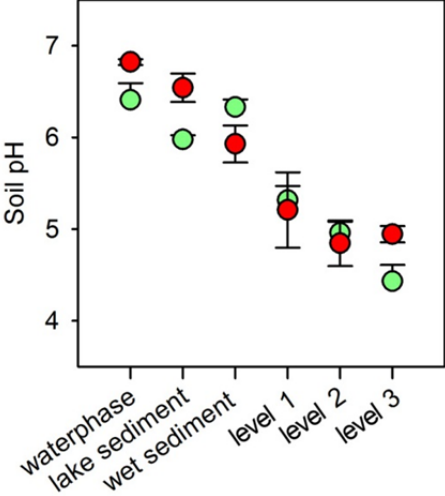


Figure S5





**Figure S6**

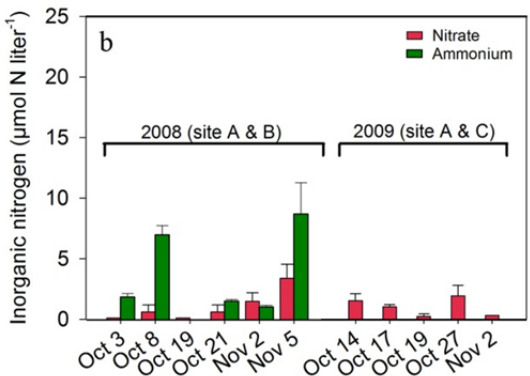
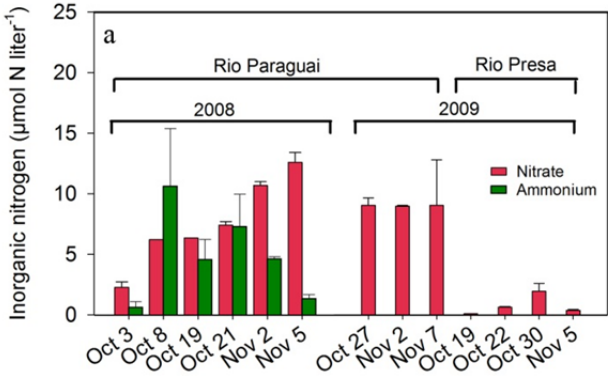


Figure S7

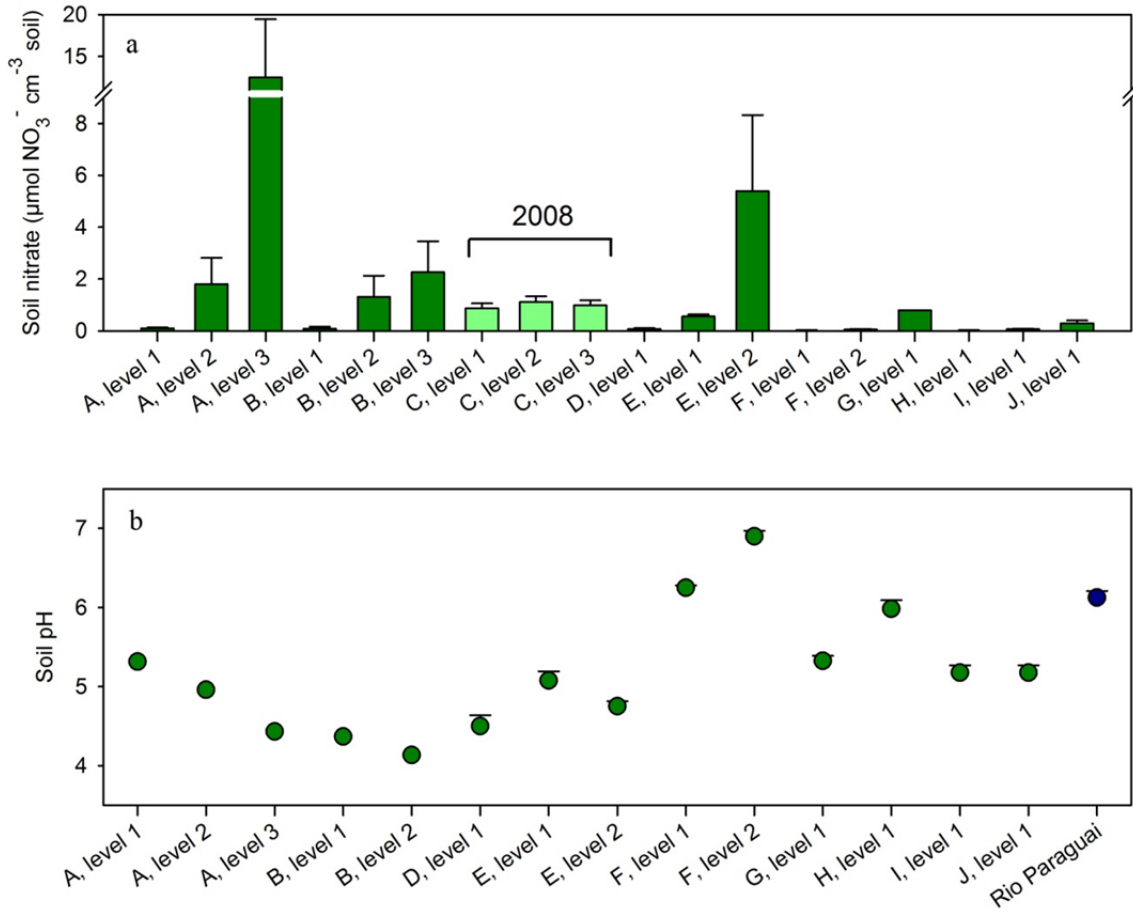


Figure S8

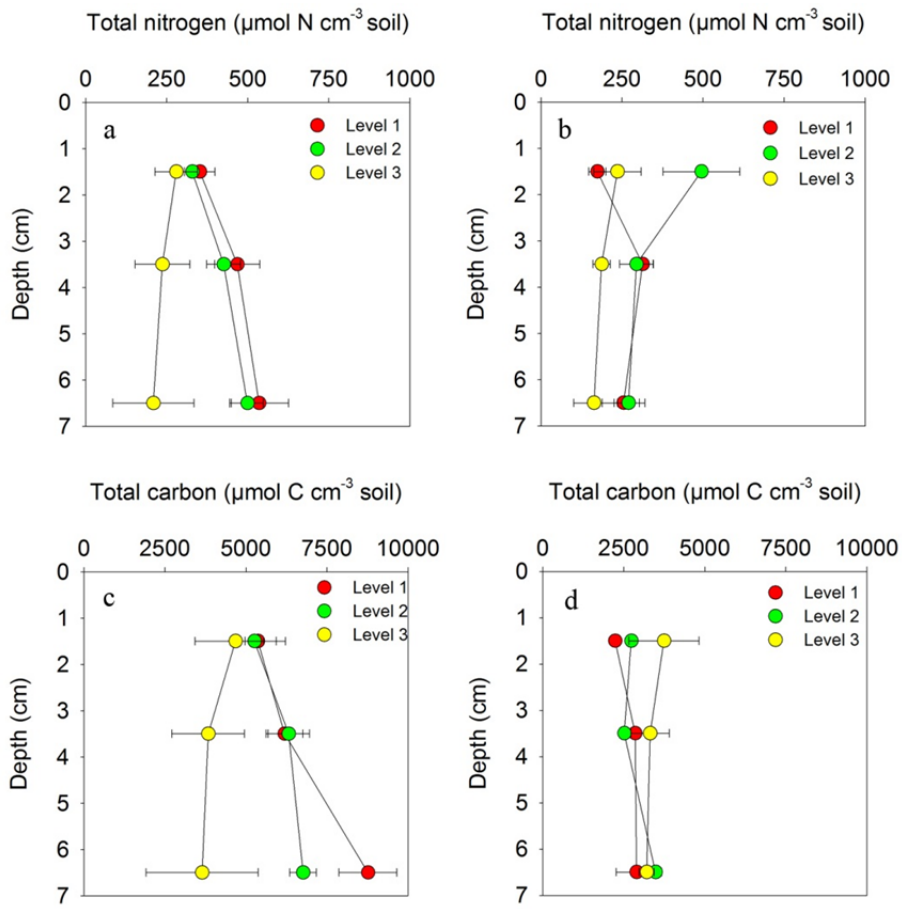


Figure S9

