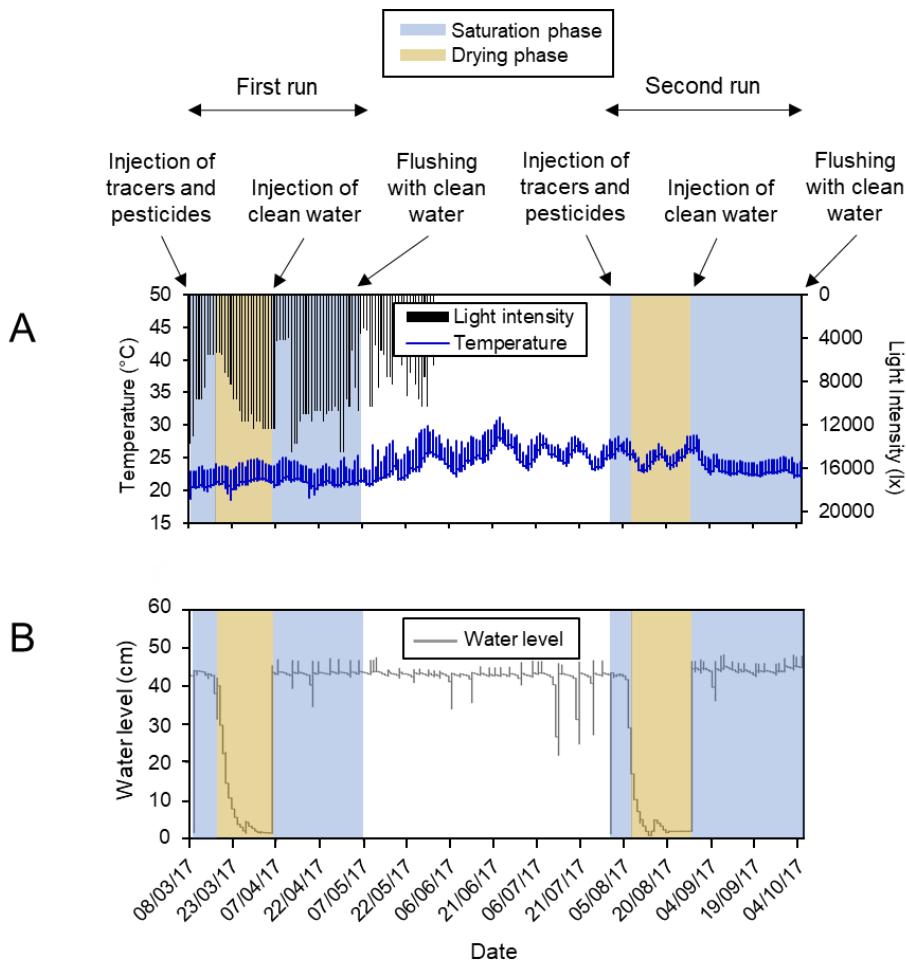
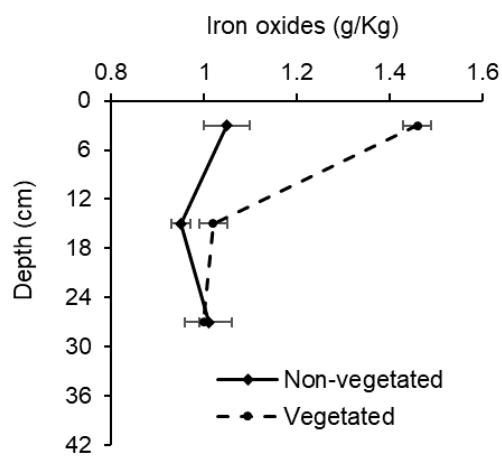


## Supplementary Material



5

**Figure S1.** A) air temperature and light intensity of the experimental room and B) variation of the water level in the wetland system during the experimental runs. The different injections performed during each run are displayed on top of the figure. Missing data for the light intensity are due to a failure of the sensor.



10

**Figure S2.** Selected vertical gradients of iron oxides measured in the sediment (sand) at the end of the experiment in the non-vegetated and vegetated zone. Values represent means of duplicates  $\pm$  standard deviation.

**Table S1. Mean values of the main parameters measured in the sediment (soil moisture, conductivity and temperature) and the pore water (nitrates) in the different phases of the experiment (saturation, drying, saturation) during each run and at each depth and zone (non-vegetated and vegetated).**

Parameter	Depths		39 cm (gravel)		27 cm (sand)		15 cm (sand)		3 cm (sand)	
	Run	Zone	Non-Veg	Vegetated	Non-Veg	Vegetated	Non-Veg	Vegetated	Non-Veg	Vegetated
	Phase									
Soil moisture [m <sup>3</sup> m <sup>-3</sup> ]	1°	Sat	-	0.32 ± 0.03	-	0.41 ± 0	-	0.38 ± 0.01	0.34 ± 0.02	0.32 ± 0.02
		Dry	-	0.30 ± 0.06	-	0.40 ± 0.01	-	0.38 ± 0.01	0.29 ± 0.03	0.26 ± 0.04
		Sat	-	0.33 ± 0.04	-	0.42 ± 0.01	-	0.39 ± 0	0.33 ± 0.02	0.32 ± 0.03
	2°	Sat	-	0.34 ± 0.04	-	0.42 ± 0	-	0.39 ± 0	0.32 ± 0	0.33 ± 0.03
		Dry	-	0.26 ± 0.10	-	0.41 ± 0.01	-	0.38 ± 0	0.26 ± 0.03	0.24 ± 0.04
		Sat	-	0.35 ± 0.05	-	0.41 ± 0	-	0.38 ± 0	0.31 ± 0.02	0.33 ± 0.03
Conductivity [dS m <sup>-1</sup> ]	1°	Sat	0.19 ± 0.04	0.22 ± 0.05	-	0.17 ± 0.01	0.11 ± 0	0.30 ± 0.03	0.09 ± 0.01	0.14 ± 0.02
		Dry	0.19 ± 0.04	0.23 ± 0.07	-	0.19 ± 0.01	0.11 ± 0	0.25 ± 0.03	0.07 ± 0.01	0.09 ± 0.02
		Sat	0.20 ± 0.05	0.22 ± 0.05	-	0.17 ± 0.01	0.14 ± 0.01	0.19 ± 0	0.12 ± 0.02	0.13 ± 0.02
	2°	Sat	0.22 ± 0.05	0.20 ± 0.05	-	0.15 ± 0	0.10 ± 0.06	0.17 ± 0	0.02 ± 0.01	0.10 ± 0.01
		Dry	0.17 ± 0.13	0.18 ± 0.12	-	0.18 ± 0.01	0.15 ± 0.01	0.18 ± 0	0.02 ± 0.01	0.05 ± 0.03
		Sat	0.24 ± 0.05	0.25 ± 0.05	-	0.19 ± 0.01	0.13 ± 0.04	0.21 ± 0.01	0.04 ± 0.01	0.11 ± 0.02
Temperature [°C]	1°	Sat	20.91 ± 0.34	20.56 ± 0.24	-	20.75 ± 0.28	20.52 ± 0.34	20.05 ± 0.24	20.08 ± 0.31	20.00 ± 0.29
		Dry	21.90 ± 0.57	21.51 ± 0.60	-	21.84 ± 0.57	21.43 ± 0.53	20.91 ± 0.55	20.92 ± 0.51	20.83 ± 0.56
		Sat	22.11 ± 0.46	21.62 ± 0.49	-	22.00 ± 0.46	21.75 ± 0.42	21.11 ± 0.45	21.17 ± 0.43	20.96 ± 0.49
	2°	Sat	26.24 ± 0.50	25.77 ± 0.46	26.44 ± 0.64	26.12 ± 0.46	26.34 ± 0.31	25.36 ± 0.43	25.73 ± 0.36	25.34 ± 0.44
		Dry	25.56 ± 0.76	25.16 ± 0.71	27.20 ± 1.61	25.33 ± 0.74	25.24 ± 0.74	24.48 ± 0.73	24.51 ± 0.73	24.26 ± 0.72
		Sat	23.93 ± 1.08	23.48 ± 1.15	-	23.65 ± 1.14	23.72 ± 1.10	22.87 ± 1.14	23.05 ± 1.10	22.79 ± 1.11
Nitrates [mg L <sup>-1</sup> ]	1°	Sat	3.66 ± 3.98	3.04 ± 2.79	4.49 ± 1.85	57.62 ± 35.76	12.77 ± 3.81	97.09 ± 13.05	55.66 ± 12.81	13.64 ± 4.96
		Dry	0.28 ± 0.44	1.67 ± 3.06	0.51 ± 0.29	80.61 ± 18.42	12.07 ± 4.17	86.82 ± 12.35	98.33 ± 18.99	17.53 ± 8.07
		Sat	2.81 ± 4.60	8.33 ± 4.96	0.25 ± 0.26	31.36 ± 21.23	2.43 ± 6.95	27.06 ± 18.05	34.07 ± 48.46	24.22 ± 31.96
	2°	Sat	0.08 ± 0.10	0.07 ± 0.06	0.32 ± 0.49	0.02 ± 0.02	0.31 ± 0.18	0.04 ± 0.04	9.08 ± 15.65	0.25 ± 0.24
		Dry	25.95 ± 44.80	0.19 ± 0.19	0.19 ± 0.22	0.04 ± 0.03	15.23 ± 23.04	0.07 ± 0.04	0.75 ± 0	0.04 ± 0
		Sat	5.43 ± 11.07	1.04 ± 2.02	3.95 ± 5.78	0.15 ± 0.22	0.31 ± 0.62	0.07 ± 0.10	76.22 ± 70.28	0.40 ± 0.65

The results are presented as mean ± standard deviation. Missing data are due to a failure of the sensor.