CSIRO PUBLISHING
Functional Plant Biology, 2011, **38**, 1024–1025
http://dx.doi.org/10.1071/FP09270_CO

Corrigendum

The effect of saline hypoxia on growth and ion uptake in *Suaeda maritima*

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(Vol. 37, No. 7 pp. 646–655)

Figure 6 contains an error in part (*b*). The *x*-axis should read 'Shoot' and 'Root' and the bars should be labelled 'Nitrate' (white bar) and 'Ammonium' (grey bar). This also applies to Figure S6 in the Accessory Publication. The correct figures appear below:

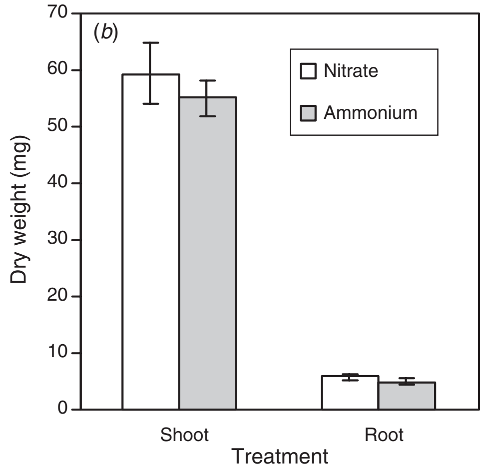


Fig. 6*b*

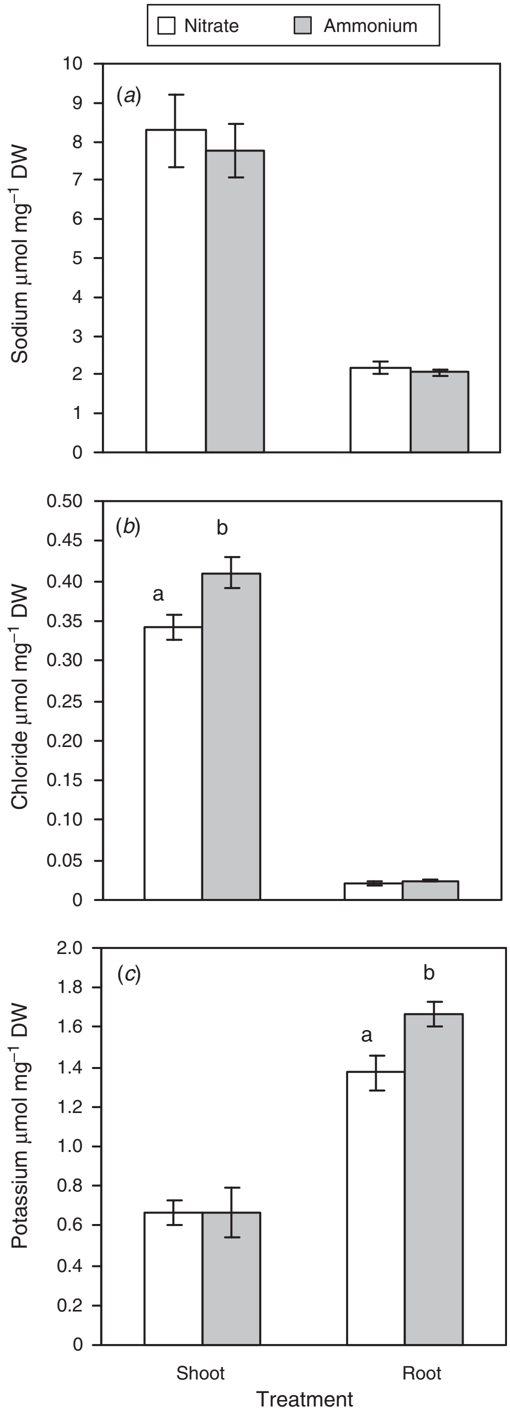

Nitrate
Ammonium
(a)
Sodium µmol mg⁻¹ DW
10
9
8
7
6
5
4
3
2
1
0
(b)
a
b
Chloride µmol mg⁻¹ DW
0.50
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0
(c)
a
b
Potassium µmol mg⁻¹ DW
2.0
1.8
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0
Shoot
Root
Treatment

Fig. S6

10.1071/FP09270_AC

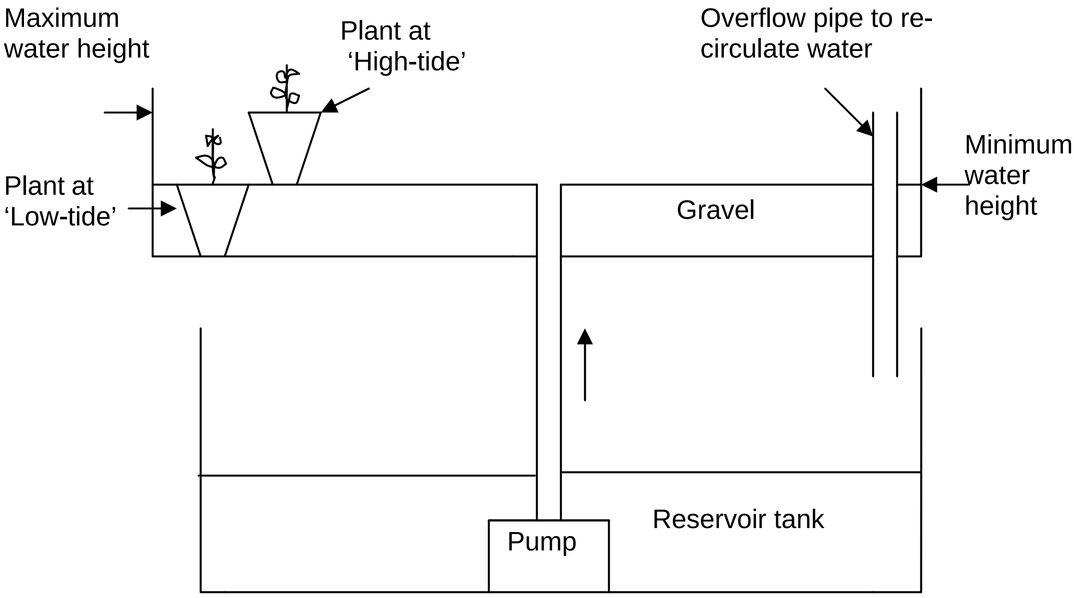
Accessory Publication: Functional Plant Biology, 2010, 37(7), 646–655.

Accessory Publication

Fig. S1. Cuckmere Haven salt-marsh viewed looking south to the sea wall in September 2006. The high bank with tallest *Suaeda maritima* is in shadow on the left and the low-marsh area extends to the right. The Cuckmere salt-marsh is a semi-enclosed area, approximately 100 m by 80 m, of fairly flat land adjacent to the mouth of the Cuckmere River, from which it floods and drains, on its western side; a 1 m high bank delimits the eastern side. *S. maritima* grew both in the low mud flat areas (with *Salicornia* spp.) and in the higher areas adjacent to the bank. Flooding of the whole area occurred at high-tides and the mud flat drained at extreme low-tides.

The Adur estuary salt-marsh extends directly from the river banks to form mud flats with, in places, a steep gradient from low-tide to high-tide mark. *S. maritima* and *Salicornia* spp. grew together on the lower marsh with a sharp delineation at about mid-tide level, above which dense stands of *Atriplex portulacoides* occurred and *S. maritima* grew sparsely. Around and just above high tide mark *S. maritima* alone grew in abundance.

(*a*)



(*b*)

Fig. S2. (*a*) Diagrammatic representation of the simulated tidal flow tank system for creating fluctuating waterlogged conditions in pots of *Suaeda maritima*. Seawater was pumped from the reservoir into the gravel-filled tank to a maximum depth of 18 cm after which the seawater returned down the overflow pipe back to the reservoir tank. A minimum seawater height of 9 cm was maintained when the pump was off and seawater drained down to the height of the central pipe at the level of the top of the gravel. (*b*) Photograph showing *Suaeda maritima* plants growing in pots on top of or sunk into the gravel in the tanks of the glasshouse tidal flow tank system.

Fig. S3. Photograph showing flooded plants of *Suaeda maritima* after 4 weeks treatment in the glasshouse tidal flow tank system.

Fig. S4. Photograph of *Suaeda maritima* plants growing in pots of Stout & Arnon nutrient solution in a controlled environment growth chamber. Treatments were: (*a*) Stagnant with Agar (SA), (*b*) N_2-bubbled (N), (*c*) Semi-Stagnant normoxic without agar (SS), (*d*) Aerated nutrient solution (A). Stout & Arnon solution contained 6 mM KNO_3, 4 mM $Ca(NO_3)_2$, 2 mM $MgSO_4$, 1 mM KH_2PO_4, 4 µM H_3BO_3, 0.7 µM $ZnSO_4$, 0.3 µM $CuSO_4$, 7 µM $MnSO_4$, 10 µM MoO_3, 20 µM NH_4VO_3, 10 µM $CrK_2(SO_4)_4$, 20 µM $NiSO_4$, 20 µM $Co(NO_3)_2$, 5 µM Na_2WO_4, 0.027 mM NaFeEDTA. Half-strength artificial seawater contained 205 mM NaCl, 27 mM $MgCl_2$, 14 mM Na_2SO_4, 5 mM $CaCl_2$ and 4 mM KCl.

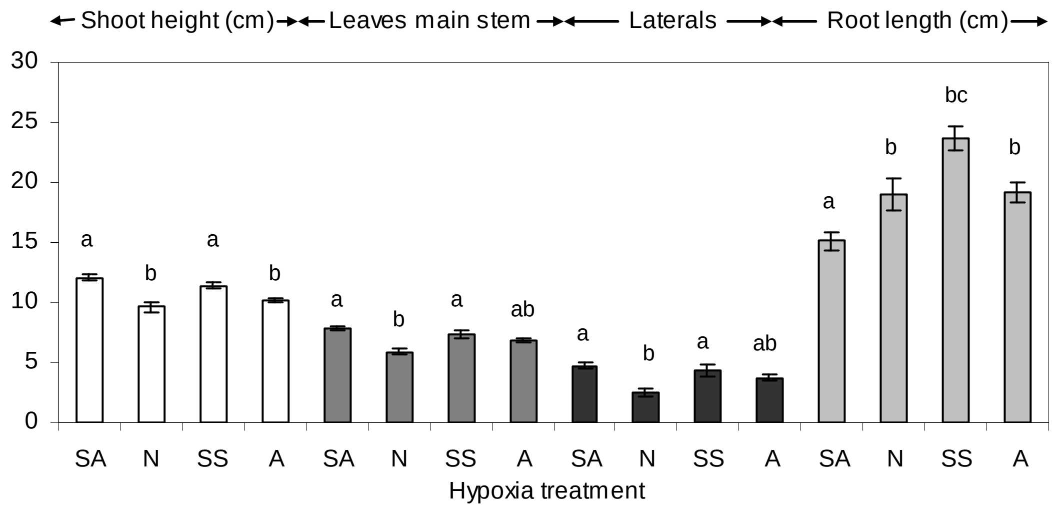


Fig. S5. Shoot height, leaves on main stem, lateral branches and length of longest root of *Suaeda maritima* plants after 14 days growth under different degrees of root hypoxia: Stagnant with Agar (SA), N_2-bubbled (N), Semi-Stagnant normoxic without agar (SS), Aerated nutrient solution (A). Data are means ± s.e. (n = 20). Letters above bars indicate significant difference in means from post hoc Tukey tests for shoot height, leaves, lateral branches and root length separately. ANOVA; height $F_{3,75}$, = 12.9, $P < 0.001$, laterals $F_{3,75}$, = 7.9, $P < 0.001$, leaves $F_{3,75}$, = 9.6, $P < 0.001$, root length $F_{3,75}$, = 12.9, $P < 0.001$.

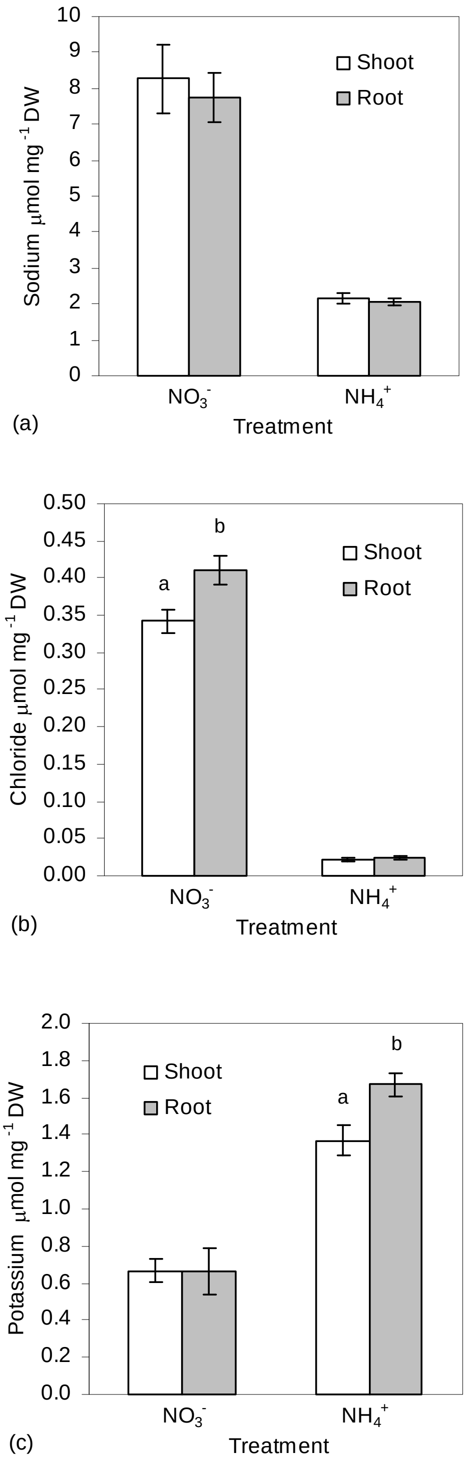


Fig. S6. Na^+, Cl^- and K^+ concentrations in shoot and root of *Suaeda maritima* plants after 24 days growth with different nitrogen source; NO3$^-$ or NH4$^+$. Data are means ± s.e. (n = 10). Letters above bars indicate significant difference in means from post hoc Tukey tests. (a) Sodium. ANOVA; shoot $F_{1,17}$, = 0.2, P = 0.670, root $F_{1,17}$, = 0.4, P = 0.528. (b) Chloride. ANOVA; shoot $F_{1,17}$, = 6.6, P = 0.020, root $F_{1,17}$, = 0.7, P = 0.401. (c) Potassium. ANOVA; shoot $F_{1,17}$, = 0.001, P = 0.979, root $F_{1,17}$, = 6.1, P = 0.025.

Table S1. Statistical analysis of Figs 2–7

Fig. 2.	Dry weights of *Suaeda maritima* plants after 4 weeks growth (10 weeks old at harvest) (*a*) in sand, (*b*) in mud/sand mixture under different seawater concentrations and waterlogging regimes: seawater 'High-tide' pots (SWH), seawater 'Low-tide' pots (SWL), half-strength seawater 'High-tide' pots (½SWH), half-strength seawater 'Low-tide' pots (½SWL). Data are means ± s.e. (n = 30). (*a*) Shoot, ANOVA; salinity $F_{1,113}$, = 153, P < 0.001, waterlogging $F_{1,113}$, = 160, P < 0.001, interaction $F_{1,113}$, = 34.9, P < 0.001. Root, ANOVA; salinity $F_{1,113}$, = 86.7, P < 0.001, waterlogging $F_{1,1}$, = 136, P > 0.001, interaction $F_{1,113}$, = 16.8, P < 0.001. (*b*) Shoot, ANOVA; salinity $F_{1,116}$, = 74.7, P < 0.001, waterlogging $F_{1,116}$, = 48.1, P < 0.001, interaction $F_{1,116}$, = 4.8, P = 0.031.
Fig. 3.	(*a*) Shoot Na^+ and (*b*) K^+ concentrations of *Suaeda maritima* plants (10 weeks old at harvest) after 4 weeks growth in sand and mud/sand mixture under different seawater concentrations and waterlogging regimes: seawater 'High-tide' pots (SWH), seawater 'Low-tide' pots (SWL), half-strength seawater 'High-tide' pots (½SWH), half-strength seawater 'Low-tide' pots (½SWL). Data are means ± s.e. (n = 30). ANOVA for plants in sand: Na^+; salinity $F_{1,113}$, = 101, P < 0.001, waterlogging $F_{1,113}$, = 0.03, P = 0.876, interaction $F_{1,113}$, = 0.4, P = 0.533. K^+; salinity $F_{1,113}$, = 93.1, P < 0.001, waterlogging $F_{1,113}$, = 27.7, P < 0.001, interaction $F_{1,113}$, = 0.2, P = 0.679. ANOVA for plants in mud/sand mixture: Na^+; salinity $F_{1,115}$, = 25.7, P < 0.001, waterlogging $F_{1,115}$, = 32.0, P < 0.001, interaction $F_{1,115}$, = 0.3, P = 0.581. ANOVA for K^+; salinity $F_{1,115}$, = 49.9, P < 0.001waterlogging $F_{1,115}$, = 56.6, P < 0.001, interaction $F_{1,115}$, = 10.2, P = 0.002.
Fig. 4.	Shoot and root dry weight of *Suaeda maritima* plants after 14 days growth under different degrees of root hypoxia indicated by the oxygen concentrations (µM) shown in parentheses: Stagnant with agar (SA) 30 ± 1 (s.e.) µM O_2, N_2-bubbled (N), Semi-Stagnant normoxic without agar (SS) 140 ± 5 µM O_2, Aerated (A). Data are means ± s.e. (n = 20). Statistical analyses were on all data including N_2-bubbled (N) and aerated (A). ANOVA; shoot $F_{3,75}$, = 9.8, P < 0.001, root $F_{3,75}$, = 3.4, P = 0.022.
Fig. 5.	Na^+, Cl^- and K^+ concentrations in shoot and root of *Suaeda maritima* plants after 14 days growth under different degrees of root hypoxia indicated by the oxygen concentrations (µM) shown in parentheses: Stagnant with Agar (SA) 30 ± 1 (s.e.) µM O_2, Semi-Stagnant normoxic without agar (SS) 140 ± 5 µM O_2. Data are means ± s.e. (n = 20). Statistical analyses were on all data including N_2-bubbled (N) and aerated (A). (*a*) Na^+; ANOVA; shoot $F_{3,75}$, = 0.6, P = 0.643, root $F_{3,75}$, = 5.9, P = 0.001. (*b*) Cl^-; ANOVA; shoot $F_{3,75}$, = 13.7, P < 0.001, root $F_{3,75}$, = 6.9, P < 0.001. (*c*) K^+; ANOVA; shoot $F_{3,75}$, = 7.0, P < 0.001, root $F_{3,75}$, = 3.5, P < 0.001.
Fig. 6.	*Suaeda maritima* plants after 24 days growth with different nitrogen source; NO_3^- or NH_4^+. Data are means ± s.e. (n = 10). (*a*) Shoot height, number of leaves on main stem, number of pairs of lateral branches and longest root length. ANOVA; height $F_{1,17}$, = 0.07, P = 0.934, leaves $F_{1,17}$, = 0.2, P = 0.686, laterals $F_{1,17}$, = 1.6, P = 0.222), root length $F_{1,17}$, = 0.5, P = 0.487.

	(*b*) Shoot and root dry weight. ANOVA; shoot $F_{1,17}$, = 0.5, *P* = 0.512, root $F_{1,17}$, = 1.8, *P* = 0.196
Fig. 7.	$^{22}Na^+$ influx in *Suaeda maritima* roots of plants grown for 21 days in aerated or hypoxic solution. Letters show Pre-treatment salinity (mM NaCl) followed by influx treatment salinity (mM $^{22}Na^+$) with or without inhibitors TEA^+ (D, F and I) or Ba^{2+} (G and J). Data are means ± s.e. (*n* = 6). General Linear Model: difference in $^{22}Na^+$ influx between groups A, B, C, E, H; oxygen, salinity treatment and interaction between these two factors all highly significant. GLM between groups C, E, H, D, F, I; oxygen, salinity treatment and inhibitor TEA^+ all highly significant and only the interaction between oxygen and salinity treatment highly significant. GLM between groups E, H, F, I, G, J; salinity treatment and inhibitor Ba^{2+} both highly significant and the interaction between oxygen and inhibitor was highly significant. Oxygen was not significant in this case and no other interactions were significant.